# Telephony.

THE AMERICAN TELEPHONE JOURNAL

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## The Independents' Opportunity.

As recorded in this issue, there will be two Independent telephone conventions in Chicago next month. The National Independent Telephone Association has called its annual meeting for January 13, 14 and 15, and the Independent Telephone Association of America, which was organized in October last, will meet January 20, 21 and 22. Both associations will meet at the Hotel La Salle, Chicago.

As TELEPHONY has always contended there should be only one Independent association, and that should be a strong, aggressive organization, big enough and broad enough to include in its membership all men who believe in locally-owned telephone systems, and who will co-operate toward a wider use of the telephone. The cold fact is that there is not enough real difference between the avowed principles of the two associations now in the field to warrant them operating as two separate and distinct units.

Ostensibly, at least, both associations are working toward the same end. The men prominent in the councils of both associations are in the same business. All wish to see the telephone question settled, and settled right. They are interested in having the telephone business placed on a solid basis—a basis which the government must establish, and which will mean the preservation of the rights of Independents.

Telephone men should attend both conventions next month, and work for a consolidation of the two associations. The saying, "In union there is strength," may be familiar, but it is just as true as it is old. No one will deny that, working together, the two associations can increase their effectiveness many-fold. The fable of the bundle of faggots has special application in this instance. By concerted action Independent telephone men can do much to insure their interests being protected; divided, they can but hinder themselves, work at cross purposes and make it easier for the opposition.

When the two associations meet in Chicago in January, they should join forces, and work in unison. No other course can produce results of lasting benefit to the Independent telephone industry, and that, of course, is what we should all strive for.

## Monopoly the Paramount Issue.

President Wilson has demonstrated that he can induce congress to accept (willingly or unwillingly) his ideas on legislation. Therefore, his message to the new session, which began its work this week, has genuine weight. He intimates that the question of monopoly will be the all-important issue before congress, and that means that the strength of the federal administration will be exerted to liberate the business of the country from the chains of oppressive private monopoly.

His words on this subject are of particular interest to telephone men, whose eyes have been turned toward the government since the Department of Justice began its suit against the Bell combination in the Pacific Northwest, and are as follows:

Turn from the farm to the world of business, which centers in the city and in the factory, and I think that all thoughtful observers will agree that the immediate service we owe the business communities of the country is to prevent private monopoly more effectually than it has yet been prevented. I think it will be easily agreed that we should let the Sherman anti-trust law stand, unaltered, as it is, with its debatable ground about it, but that we should as much as possible reduce the area of that debatable ground by further and more explicit legislation, and should also supplement that great act by legislation which will not only clarify it but also facilitate its administration and make it fairer to all concerned.

No doubt we shall all wish, and the country will expect, this to be the central subject of our deliberations during the present session; but it is a subject so many-sided and so deserving of careful and discriminating discussion that I shall take the liberty of addressing you upon it in a special message at a later date than this. It is of capital importance that the business men of this country should be relieved of all uncertainties of law with regard to their enterprises and investments and a clear path indicated which they can travel without anxiety. It is as important that they should be relieved of embarrassment and set free to prosper as that private monopoly should be destroyed. The ways of action should be thrown wide open.

More complete knowledge concerning that "debatable

ground" is, of course, to be desired by all classes of business men. Telephone men, particularly, are keenly interested in a clearer interpretation of the anti-trust law as it applies to the maneuvers of the Bell combination, and in a fuller exposition of what the government proposes to do in regard thereto. President Wilson promises a special message later, more specifically covering the question of monoply. Probably after a decision has been rendered in the government's anti-trust case in the Pacific Northwest he will be able to discuss the matter more in detail.

# Where Is Your Ambition?

## By HERBERT KAUFMAN

Ambition is the expression of personality—evidence of man's desire to individualize himself. Often originating in resentment against authority, it is a declaration of independence which harnesses power to purpose; translates vague talents to definite tasks; and leads to the selection of congenial and therefore enthusiastically performed labors.

Ability of some sort is latent in everyone. All normal, healthy men are endowed with peculiar qualities which equip them for the competent pursuit of peculiar vocations. But few endeavor to place themselves properly and continue to follow the first occupation upon which they chance.

Success is usually a manifestation of forethought and enterprise, rather than an earnest and natural superiority.

Majorities are habitually conventional and cautious. The average man prefers a known certainty to a possible betterment—a comparatively guaranteed living to a greater but a risky opportunity. He is content, in return for a guaranteed wage, to accept the place and adopt the pace determined by the few who in each community agree to assume the chances, associated with direction and proprietorship.

Thus it happens that out of every ten members of society, at least nine never learn the full potentialities of their skill and intellect, nor discover how far they might have progressed under the stimulus of initiative. They tacitly acquiesce in the limitations of their allotted positions; interpret efficiency solely as a sufficiently satisfactory day's work to maintain their jobs; eliminate the personal equation from their tasks; occupy a relation to organizations similar to that of cogs in machinery; and become standardized units to be replaced at any moment and are hired and "fired" according to the market quotations on their commonplace types of service.

Until you dare for yourself, you must take whatever share is delegated to you. As long as you distrust your own judgment, your apparent lack of confidence will keep you down among the hand-to-mouth toilers. Try for something bigger and better—you can always drop back to your present bottom level. The only risk lies in not attempting to rise. If you do not seek the top, how will you ever test your ability? Perhaps you do not belong below.

Of course, you may lose time, probably undergo occasional hardships, likely as not be out of employment for a season, but any of these contingencies is a mighty cheap admittance price to the game without a limit. You have repeatedly said you are as "Good as the next"; if you honestly believe that, PROVE IT!

Start tomorrow! Ambitions find fertile soil in every field and take root wherever courage sows. You probably are superior to your present position, but if that is true, you have permitted fear of temporary failure to "get your nerve," and even a genius without "guts" will land in the gutter. You explain your fruitless career by the plea that "family obligations" do not permit you to take a chance, but cowards have been hedging with that trite excuse since Father Time was a likely youth. If your first thoughts were for the welfare of your family, you would be so eager to improve their lot, add to their comforts, provide decent educations and protect their old age, that today you'd be making a pay roll instead of signing one. Other men—men who have lived to achieve mightily and to wear the chaplets of fame—had dependent families, too. Despite their poverty and the insistent need of continuous revenue, they were brave enough to acknowledge that it was better to impose the penalties of ambition upon parents and children, than to doom them to whole lifetimes of scraping and scrimping along upon the bare necessities of existence.

Responsibility is a handicap to a weakling but a spur to the strong. The man who sticks in a rut because he is weighted down with obligations to others, is himself a burden upon the dependents.

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# Two National Telephone Conventions in January

**The National Independent Telephone Association and the Independent Telephone Association of America Announce Annual Conventions—To be Held One Week Apart in Chicago at Hotel La Salle, January 13-15 and January 20-23, 1914**

As TELEPHONY goes to press, the announcements which appear on the following page were received from Manford Savage and W. S. Vivian, relative to two telephone conventions to be held at the Hotel LaSalle, Chicago, next month. The National Independent Telephone Association will hold its annual meeting January 13, 14 and 15, and the Independent Telephone Association of America will hold its convention one week later, January 20, 21 and 22. Both organizations are making preparations for a large attendance. The conventions will be held on the 19th floor of the Hotel LaSalle and the 17th floor will be given over to the manufacturers for their exhibits. Already considerable space has been taken by leading manufacturers and supply companies for both events. The management of the Hotel LaSalle has made arrangements to take good care of the visiting telephone men for these two weeks, and it is hoped that representatives of Independent companies from all parts of the country will make special efforts to be present at both meetings.

On Wednesday evening, January 14, the National Independent Telephone Association will give a banquet for those attending its sessions and plans are being formed to make this a very enjoyable affair. A similar entertainment will be arranged later by the Independent Telephone Association of America for its members and visitors.

Hotel La Salle, Chicago, Where Conventions Will Be Held.

The suggestion is made that all the telephone men who are planning to attend these conventions make early hotel reservations. Both organizations have committees at work on their programs, and both are certain that the coming conventions will be full of interest from start to finish.

Coming within a few days of each other, these conventions can be attended by telephone men without much loss of time or expense. Questions of vital importance will be discussed at both meetings and should have the consideration of all connected with the Independent telephone industry. The fact that the federal government is giving particular attention to the telephone business right now, and the present discussion of government ownership of the telephone and telegraph, combine to make these conventions very important. Telephone men who have ideas along these lines should come to Chicago in January and discuss them with their brethren of the fraternity; those who are seeking information on these subjects will, no doubt, find such attendance profitable.

The officers of the National Independent Telephone Association are as follows: President, Manford Savage, president Home Telephone Co., of Champaign, Ill.; vice-president, N. G. Hunter, president Home Telephone Co., Wabash, Ind.; secretary and treasurer, J. B. Earle, president Texas Independent Telephone System, Waco, Texas; assistant secretary, N. Thompson, Chicago.

The members of the board of directors are: Manford Savage, Champaign, Ill.; N. G. Hunter, Wabash, Ind.; H. D. Critchfield, general sales manager, Automatic Electric Co., Chicago; L. D. Kellogg, president, Kellogg Switchboard & Supply Co., Chicago; W. J. Thomas, president, Shelby County Telephone Co., Shelbyville, Ky.; C. Y. McVey, general manager, Cuyahoga Telephone Co., Cleveland, Ohio; P. C. Holdoegel, secretary and general manager, Mutual Telephone Co., Rockwell City, Iowa; Warren Pratt, of the Kearney Telephone Co., Kearney, Neb.; H. B. McMeal, Chicago; F. B. MacKinnon, secretary, Kansas Independent Telephone Co., Topeka, Kan.; H. C. Todd, manager, Hanamo Telephone Co., Maryville, Mo.; J. B. Earle, of Waco, Texas; W. G. Brorein, president, Peninsular Telephone Co., Tampa, Fla.; Chas. West, general manager, American Union Telephone Co., Allentown, Pa.; W. C. Handlan, Wheeling, W. Va.; and C. E. Tarte, general manager, Citizens Telephone Co., Grand Rapids, Mich.

The officers of the Independent Telephone Association of America are: President, E. B. Fisher, secretary of the Citizens Telephone Co., of Grand Rapids; first vice-president, G. W. Robinson, vice-president and treasurer of the Tri-State Telephone & Telegraph Co., of St. Paul; second vice-president, E. D. Schade, general manager of the Johns-

**NATIONAL INDEPENDENT TELEPHONE ASSOCIATION.**

**Chicago, Dec. 4, 1913.**

**Editor of TELEPHONY:**

**Will you kindly announce in the columns of TELEPHONY that the seventeenth annual convention of the National Independent Telephone Association will be held at Hotel La Salle, Chicago, January 13, 14 and 15. A program of unusual merit, which it is believed will be of the greatest benefit to all Independent telephone men in the country, is being prepared. Immediately following this convention at the same place, the Independent Telephone Association of America will hold its convention. This will enable manufacturers and dealers to exhibit at both conventions at a minimum expense, and doubtless a large number will avail themselves of the opportunity. All Independent telephone men should attend both and hear a full discussion of all matters relating to every phase of the business. We shall have an opportunity to hear the Independent telephone business discussed from all angles. These two conventions ought to make history and we trust there will be a full attendance at both.**

**(Signed) Manford Savage,**
**President National Independent Telephone Association.**

town Telephone Co., of Johnstown, Pa.; secretary, W. S. Vivian, formerly secretary and treasurer of the Michigan Independent Telephone & Traffic Association; treasurer, Richard Valentine, secretary and general manager of the Rock County Telephone System, Janesville, Wis.; manager of the telephone service department, F. L. Eldridge, formerly secretary of the Telephone Service Association, Chicago.

On the board of directors in addition to the officers are: W. J. Uhl, secretary and general manager of the Logansport Home Telephone Co., Logansport, Ind.; Samuel Hill, president Home Telephone & Telegraph Co., Portland, Ore.; J. H. Wright, secretary and general manager of the Home Telephone Co., Jamestown, N. Y.; B. G. Hubbell, president of the Federal Telephone & Telegraph Co., Buffalo, N. Y.; J. C. Casler, president Dallas Automatic Telephone Co., Dallas, Texas; T. J. Shufflin, People's Telephone Company, Butler, Pa.; H. L. Beyer, Grinnell, Iowa; and E. M. Cooke, Keystone Telephone Company of Philadelphia, Pa.; and L. A. Herrick, Stephenson County Telephone Co., Freeport, Ill.

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**Progress of Government Anti-Trust Hearings.**

The Chicago hearings in the government's suit against the Bell telephone monopoly in the Northwest were concluded on Friday evening of last week after daily hearings for about ten days. In order to make it possible to resume the hearings in Baltimore on Tuesday of this week, no recess was taken on Thanksgiving Day.

In the cross examination of G. W. Robinson, vice-president and treasurer of the Tri-State Telephone & Telegraph Co., of St. Paul, Minn., an attempt was made by E. S. Pillsbury, counsel for the American Telephone & Telegraph Co., to show the Tri-State company to be a combine in violation of the Sherman anti-trust act. The situation of that company was summarized by C. B. Randall, counsel for the Tri-State, as follows: "It is true that the Tri-State company bought in 20 smaller companies, but this purchase was made to extend service. Not one of the companies bought in was, before the purchase, competing with any of the other companies bought up, or with the Tri-State company. The amalgamation was made for the purpose of improving and extending service, not for the purpose of killing competition."

W. S. Paca, of the Petroleum Telephone Co., of Oil City, Pa., spoke of the wretched condition of telephone service in that territory before the Independents entered the field and of the improvement since the advent of competition.

John H. Wright of the Home Telephone Co. of Jamestown, N. Y., testified as to the establishment of Independent service in Jamestown, and said that the Bell system had 300 free telephones there, with which it endeavored to fight the Independent company and starve it out of business.

Hiram D. Currier and C. M. Winston, electrical engineers of the Kellogg Switchboard & Supply Co., testified that in their opinion the Bell telephone companies have made practically no improvements in their system since 1900. "The only improvements have been in the efficiency of the operators," said Mr. Currier. "The switchboard of today is practically identical with that in use at the beginning of this century."

At the conclusion of the Chicago hearings, Special Assistant Attorney General Smyth left for Washington, D. C., to confer with Washington officials, and then went to Baltimore for the hearing which began there on Tuesday afternoon. The Chesapeake & Potomac Telephone Co. was represented by its local counsel, Bernard Carter & Sons. The Departmen of Justice was represented, in addition to Mr. Smyth, by District Attorney John Philip Hill.

Some of those at the hearing were Chief Engineer Phelps and his assistant, W. S. Edwards, of the Maryland Public Service Commission; H. Findlay French, counsel for the Telephone Protective Association, and Herbert Sheridan, traffic manager of the Chamber of Commerce. Mr French, attorney for the Protective Association, was the first witness called. He reviewed in detail the fight of the association for the retention of the flat rates.

Other hearings were scheduled for the latter part of this week at New York, and a hearing will probably be held at Philadelphia before the testimony-taking is concluded in the East.

**INDEPENDENT TELEPHONE ASSOCIATION OF AMERICA.**

**Telephony Publishing Co.,**
**Chicago, Ill.**

**Chicago, Dec. 1, 1913.**

**I beg to advise that at the meeting of our board of directors on Saturday last, it was decided to hold a convention at the Hotel LaSalle on Tuesday, Wednesday and Thursday, January 20, 21 and 22, 1914.**

**We should be pleased to have you announce this in the next issue of TELEPHONY.**

**Yours very truly,**
**(Signed) W. S. Vivian, Secretary.**

# The December Show

### Hogs, Peaches, Beet Sugar—Industrial Amity, Etc.

By J. C. Kelsey

The Santa Fe Railway system is a credit to the industrial world. Its employes are a superior lot of men, and its officers are unusually efficient. Its president, E. P. Ripley, is a man of the constructive school—that is why we like to go to Kansas City, or to California, on his railway.

Now, President Ripley, while stopping at Kansas City, did a very democratic thing. He bought a peach, and paid five cents for it—even as you and I.

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I presume the peach was a sound one, for the train pulled out on time with President Ripley sitting comfortably in his private car. Pretty soon, President Ripley looked out upon the good fertile soil of Kansas, the taste of the peach was still in his mouth.

The first thing he saw was a farmer feeding peaches to his hogs.

Just what he said is not recorded—neither are his innermost thoughts. But in that glance he saw the missing link so long sought after; the missing link which makes us complain of the high cost of living; the great gap, the crossing of which keeps prices on the upturn.

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A peach costs five cents in Kansas City; seven miles from Kansas City, they feed them to the hogs.

Will some sphinx speak and disclose the answer to this riddle?

It shows that our troubles are not those of tariff, suffrage, currency, etc. It shows our impudence and our inefficiency. Look out of every train window, and you see the same thing.

If the government wants to do some real handsome work, let them trace that gap between the man eating the peach and the hog eating the peaches. I can't solve it myself.

No doubt, some of my critics will be surprised, but I admit that I can't bridge the gap of the peaches.

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In my family there is an old cook book, and in its preface, it calls attention to the increasing cost of living, 100 years ago.

Not long ago tablets were found under the ruins of Nineveh, and when translated, they showed that even 6,000 years ago, people complained of the high cost of living; and they thought children were becoming too forward; and that business was bad—that everything was going to the "demnition bowwows"—and the poor house would get them all.

There is really nothing new under the sun.

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Getting back to hogs and peaches! I want to speak a word about the Chicago wire hog.

Yesterday Western Union called me, and read a message to me—of course trying to save messenger charges.

The telegram asked for an immediate reply, so I started to give Western Union the text of a reply, when I was informed that they received no messages and that I would have to call up Western Union in the regular way (which cost a nickel), and give them the answer.

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Long have I heard that efficiency was the goal of monopoly! It is simply that these monopolistic benefactors want to serve us exclusively because they can save steps, and time, and of course expense.

But not so for the wire hog. Instead of giving me the message and taking my answer, I had to call up and use the Chicago Telephone Company's lines, through several exchanges and numerous operators.

But the secret of it was that Western Union had a chance to hog another nickel. So they made me call up, put in my nickel and repeat my answer to the telegraph company.

I did put in my nickel, but I called the Postal. It took some time and trouble too.

*I lost my nickel and the hog lost* 60 *cents.*

Does it not sound a great deal as the story of the gap between the peaches?

Where is the vaunted efficiency? Where is the boasted saving to the public?

It is in your mind only. Any concern which will risk 60 cents in the hands for five cents in the bush, certainly has a low order of intelligence.

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In 1903 I sent a Western Union message from the St. Joseph union depot to my anxious family in Chicago. Somewhere in the passing ten years my telegram and 50 cents is in the suspense account.

How eagerly I have attempted to trace this speedy messenger! How many letters I have written—and what tiny satisfaction I have received.

It is just such things that drive men to seek legislators' jobs—and make trouble for the big companies.

Of course, the pitiful thing about corporation baiting is that it makes the innocent stockholder suffer. Instead of "the sins of the father being visited down to the fourth generation," is has become: "The sins of the management shall be forever visited upon the stockholders."

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But as long as corporations and *hogs* are indistinguishable in their behavior, they can expect trouble and lots of it.

Look at the express company hog. It caused the people to create the parcel post in sheer self defense.

The express company should do this work under proper supervision and regulation, but it would not listen to reason. An angry father used the whip too hard.

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Another hog has been very prominent in tariff discussions.

The woolen mill people drew terrible pictures of distress, bound to come if the tariff was reduced, but the government had heard the cry of "wolf" before, and went straight ahead with the wool reduction.

I expected to hear that New England was becoming depopulated.

You remember the tears of the Gloversville people about the tariff. Well, the cotton and woolen mills were going to move to Europe and simply give us the go-by.

Last week the Union Cotton Mfg. Co. declared a 50 per cent. dividend; the Luther Mfg. Co. declared 18½ per cent. cash and 50 per cent. stock; and the Sagmore Mfg. Co. declared an extra 2½ per cent. cash.

Oh! The tears we have shed over the injustice of the tariff!

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Before the tariff bill passed, we all heard how the sugar beet industry would pine and die. The mills at Grand Junction, Colo., have broken all records—and new factories will be built. Never in the history of the beet sugar industry has there been such prosperity.

Yet you and I heard the cry of the wolf and rushed out to the shepherd boy's relief, only to be laughed at. I am tired of being fooled.

The only cloud in the New England sky is a strike by the textile firemen, who are asking for an eight-hour day instead of one of twelve. Now what right has anyone to work a man twelve hours a day?

If this causes a general strike, I hope there will be enough dynamite to go around.

Men can do as much in eight hours as they can in twelve, when worked under proper conditions.

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Pittsburgh has a cloud because some foreign iron was being offered in seaboard cities.

Monopoly and cold feet are first cousins.

Think of a well equipped mill, a good efficient list of employes, and then worry about foreign competition. It is a silly thought.

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I read a financial paper which is deploring the present. They want to go back to the "slap-dash Americanism" of the old days, when there was speculating and considerable cheating, but where there was life, activity, initiative, progress and creation.

"It was not all good but we lived as if life was worth living." I would recommend a reading of the Nineveh tablets.

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Today, this mournful writer says "there is nothing but numbness"; that "purpose has been chilled, ambition snubbed, encouragement from government withheld, and the country in the hands of detectives who watch corporations and individuals to see that they do nothing."

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We learn, too, that the business man is getting tired of this torpor—but there is no use.

"He may as well possess his soul with patience, setting his jaws firmly together, for we will have several more years of it."

"A few people are holding their chilled hands over the currency bill, trying to get a little warmth."

And he ends plaintively "perhaps we are not Americans—maybe we are Chinamen."

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I'll tell you what they are—cowards. There has been no purpose chilled, unless it was the usual purpose to loot a treasury belonging partially to a bunch of minority stockholders.

No ambition has been snubbed, unless it is one which elbows his fellow man out of his proper place. An ambition which elevates his fellow men with him, is the only one worth while, and of permanent value.

No encouragement is received from the government if one is engaged in selling submerged land or in cheating his neighbor.

As for me, I like today.

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And now comes Samuel Untermeyer, a man of large means and a lawyer; one who has created mergers and one who has dissolved them; in fact, a lawyer who closes the gate of a penitentiary at will, or opens it.

He made a speech before an economic club, at Springfield, Mass.—notice how popular economics is becoming.

How to restore confidence?

To my surprise I learned that business activity had ceased; that cobwebs have covered the doors of the national market place. This is due to plain causes:

I—Rottenness in corporation management.

II—Pending financial legislation.

III—Inability of railroads to get higher rates.

How much have you heard before?

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I wonder if you will agree with his remedy—it has a familiar sound.

I—Stop government investigation—it will only show further rottenness and make matters worse.

II—Grant a general amnesty—simply wipe off the slate and begin over, by making laws with prompt detection and punishment.

III—Give railroads living rates, or they will perish while we are reframing laws.

IV—Abolish fiscal agencies, voting trusts and interlocking directorates.

V—Destroy holding companies.

VI—Give minority stockholders representation on the directorates.

VII—Incorporate stock exchanges so that the books of members may be subject to government inspection.

VIII—Enforce publicity, disclose profits of bankers, brokers and middlemen.

IX—Give a federal industrial commission the power to approve agreements between competitors on price regulation.

X—Protect everyone from ruinous competition.

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The last seems the best. We have had ruinous competition in spots.

Even in the Chicago rate case, the Bell company openly asked for higher rates because it was losing money fighting you.

This is the only weapon worth while. Take this discrimination advantage away from a concern, such as the Bell company, and its power will soon vanish in mid-air.

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As I write I am on the Pere Marquette skirting the beautiful shore of Lake Michigan. I don't like to work this railroad train matter too hard, but it is a fine place to spend one's time writing.

As I look into the faces of the crowd at the Michigan depots, I see no great worries—simply expectancy, joy, sorrow, disappointment. Every emotion is personal—not one a national epidemic.

The thoughts of Wall Street and La Salle Street are not the thoughts of the multitude who earn their bread by the sweat of their brows.

The irrational whines coming from money centers, are the cries of monomaniacs upon one subject—money. They imagine they are carrying the world on their shoulders and that the expectant multitude is praying that they won't drop it.

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This great country has no national disorder. There is nothing wrong—we are growing right.

Just as the country discouraged horse thieves and bandits, and made life safe in earlier days, so are we making a man's pocketbook safe from highly respected so-called big business men.

We no longer think our community should have a rich man to be proud of. We would rather be proud of every man and home in the community, regardless of the size of his watered stock book.

It is better that all shall have something in this world, than a little should have all.

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Did you read the President's message? It is a terse document and you know exactly what was meant.

Did you wait with bated breath for it? According to some financial papers, that was what you were doing.

The financial mind is beyond analysis. In their hours of alarm, they always see millions of men out of work and starving; in their hours of hope, they only see themselves.

How they love the working man, and how they enjoy the odor of honest labor.

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One writer pathetically says the President would put 5,-

000,000 men out of work if he backed up the Sherman Act. Well he did, and he should have.

If men are to be put out of this work on this accout, then our prosperity is but temporary and should be changed to a permanent basis.

Did you notice any factory shutting down?

These fellows talk as if factories were playthings of magnates. Don't you believe it! They are bread and butter for them just as much as for their workingmen.

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It is deplored by another financier that the President ignores men of higher reputation and respectability. It is about time that somebody refused to listen to them—they have failed so miserably.

And another awful thing! Clerks of brokers are walking the streets in New York, and a New York real estate firm failed. Speculation is stagnant.

Why don't you cry with these emotional Nethersoles?

There is too much hysteria, too much emotional work, and too many actors in financial circles. That is why they walk the streets.

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MORAL: Why does the hog get all the peaches?

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### New Cable Between England and Ireland.

A four-core, Pupin loaded, submarine cable, adapted also for phantom working, will shortly be laid between Nevin in Carnarvonshire, England, and Howth, Ireland, about eight miles from Dublin, according to Electrical Engineering, London. This cable is primarily intended for the Manchester-Dublin service. It was manufactured by Siemens Bros. & Co., Ltd., of Woolwich. The total length is 64 nautical miles (nearly 74 miles), and it was made in two lengths of 32 nautical miles. A fifth core, 50 mils. in diameter, is laid up in the cable for a distance of half a nautical mile, at each end of the completed cable, for experimental earthing purposes. This core is insulated to 174 mils. in diameter, and is brought out and bound and soldered to the sheath. Each core is made up of strands of equal diameter, with a left-handed lay, giving an overall diameter of 170 mils. and weighing 160 lbs. per nautical mile.

The resistance was specified to be not higher than 7.452 ohms at 75° F. The dielectric consists of three alternate layers of Chattertons' compound and a special guttapercha having a low leakance and weighing 150 lbs. per nautical mile. Thus the total weight of each core is 310 lbs. and the diameter 0.285 in. The inductive capacity of each core is specified not to exceed 0.33 m.f. per nautical mile.

The loading coils in each of the four cores are spaced one nautical mile apart. They consist of four similar long and narrow double wound coils, and when tested with a current of approximately one milliampere, give in the transformer circuit, an inductance of about 100 millihenrys, and in the phantom circuit 50 millihenrys. The effective resistances with 800 and 2,000 cycles per second are 7.2 and 15.2 ohms in the transformer circuit, and 3.3 and 7.0 ohms in the phantom circuit.

A short distance from the ends of the cable, where the coils are to be inserted, the cores are made solid in guttapercha, and over this are slipped guttapercha cones, while the joints are autogenously welded. The armoring is done in the same closing machine, a secondary sheathing being placed over the first, so that they combine to form a single sheathing over the loading coils. The coils themselves are surrounded by a light metallic foil sheathing to prevent moisture being gradually absorbed by the insulation.

The specification states that if $D$ be the distance between any two coils in nauts, $K$ the wire to wire capacity in m.f.'s per naut, and $L$ the inductance per coil in millihenrys, then the product $DKL$ shall not exceed 21. It was also specified that none of the circuits should have a standard cable equivalent of more than nine miles, excluding losses, which may be eliminated by adding lengths of standard cable to each end of the loaded loop. [The standard cable is one having a loop resistance of 88 ohms per mile, a wire to wire capacity for each pair of wires of 0.054 m.f.'s per mile, and an insulation resistance of not less than 200 megohms per mile, wire to wire.] It was also specified that the insulation should be not less than 400 and not greater than 2,000 megohms per naut, and actually the tests showed an insulation resistance at 75° F. of between 400 and 300 megohms.

During stranding the cores were wormed with wet, fully tanned jute yarn, and the whole was then covered with cotton tape prepared with ozokerit compound, and then with brass tape 0.004 in. thick and 1 in. wide. Another layer of cotton tape was applied over this, and then more jute yarn to receive the sheathing. This consists of 14 wires of 0.28 in. diameter each, plus one strand of three wires 0.13 in. diameter each, of galvanized Ball furnace puddled iron. (This wire has a tensile strength between 23 and 30 tons per sq. in., can be twisted six times in six inches, and gives over 10 per cent. elongation in 10 inches.) Before being applied, the wires were heated and run through pure hot gas tar.

The length of lay is 18 inches and is left handed. Over this there are two coatings of compound and two servings of three-ply tarred jute yarn, laid in opposite directions. The overall diameter of the cable is 2.05 in., and the weight about 12.5 tons per nautical mile. When tested with a current having a frequency of 800 cycles per second, the attenuation constant was found to be 0.01504, and 0.1524 for the transformer circuits, and 0.01510 for the phantom circuit.

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### Government Telephone Service in Montana and Idaho.

The forest service department of the United States government has built over 600 miles of telephone line this year in Montana and northern Idaho and now has 3,500 telephones in the forests in that district, known a District No. 1.

R. B. Adams, district superintendent of telephone construction in this district, says:

"The forest service invites the public to use its telephones at any time, so these settlers may get into quick communication with physicians or anyone whom they may wish, and it will soon be possible to go quickly to any point in the forests by automobile, as the officials are constantly building and improving roads and widening old trails into wagon roads. Of course, in case of fire or other forest emergency, the business of the forest administration takes the right of way over that of any individual.

"Hunting parties have found the forest telephones useful in many instances when a member of the party was injured and assistance was needed quickly. We get considerable assistance from these parties, and more particularly from settlers in the forest, in keeping the lines in repair and reporting fires, for while we are rapidly perfecting a system of lookouts, it is impossible for the rangers to see all the fires or locate quickly those they do see, and a few minutes in getting to a fire often makes a great deal of difference."

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### Future of Telephone Service in Great Britain.

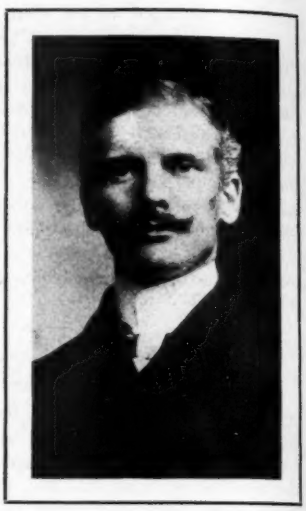
The British postmaster general recently announced that after a fairly exhaustive test the postal department of the United Kingdom purposed spending $500,000 in establishing automatic telephone exchanges. He said that while the telephonic service of the United States is more efficient than theirs, it is not so efficient as theirs will be eventually. In this direction it was hoped that the United Kingdom would soon be able to lead both the United States and Canada. With the co-operation of the postmasters of the United Kingdom he predicted that the telephone service of the country will eventually be as efficient as the postal and telegraph services.

# A Quartet of Builders in the Telephone Industry

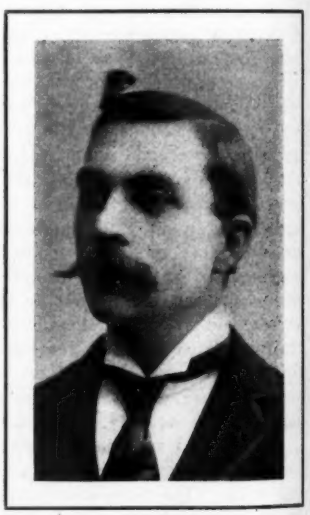
JAMES P. SMITH, president and manager of the Golden Valley Telephone Co., of Beach, N. D., was born on a farm near Watson, Mo., on September 4, 1880. He was reared on the farm and received his education in the rural schools. He began work as wireman for the Chicago Edison Co. at Chicago in 1898, and served that company and other electrical contractors in that capacity until 1903, when he decided to return to farm work. After looking over the western territory he chose the state of North Dakota and settled on a homestead at Beach, N. D., in 1903. He devoted his entire energies to his farm for the next five years as one of the pioneer farmers in that region. By 1908 the country had become settled enough for the telephone business and Mr. Smith thereupon organized the Golden Valley Telephone Co. This company now has two exchanges, one of which is located at Beach and the other at Sentinel Butte. In 1909 and 1910 the company built 300 miles of rural lines and now has about 700 telephones. Mr. Smith is a Mason, a Knight of Pythias and a city alderman of Beach.

EZRA JAMES PIETZCKER, manager of the southwestern sales department of the Standard Underground Cable Co., 521 Security building, St. Louis, Mo., was born at Rochester, Ohio, on December 22, 1857. He began his business experience as salesman for the Washburn-Moen Mfg. Co., in the early days of the barbed wire business. As telephone and electrical development began he took up the study of the new science. His connection with the Washburn-Moen Mfg. Co. and with the American Steel & Wire Co., which acquired that firm, continued until 1902, since which time he has been connected with the Standard Underground Cable Co. During his long experience with this company he has become well acquainted in the telephone field. He believes that enduring success is obtained only by those companies which buy the best materials obtainable and his business slogan is that quality is always paramount to price and will remain long after price is forgotten. Mr. Pietzcker is an associate member of the American Institute of Electrical Engineers, a member of the American Geographical Society, and is a Mason—a Shriner, a Knight of Pythias and a Jovian.

GEORGE D. WINTER, of the firm of Jones & Winter, telephone engineer and contractors, 1259 Monadnock Block, Chicago, was born in Chicago on October 8, 1860, and was educated in the Chicago grammar and high schools. Prior to 1895 Mr. Winter was engaged for eight years in electric light construction, the firm of Jones and Winter having eight years been engaged in general electrical contracting and engineering in St. Paul, Minn. In 1895 the firm turned its attention to telephone construction, designing and constructing a number of telephone systems in Minnesota, Iowa and Wisconsin. The headquarters of the company were moved to Chicago in the spring of 1900. As a member of the firm Mr. Winter has had charge of the work of engineering and superintending in connection with the installation of more than 60 telephone systems in the central state from Minnesota and Wisconsin to Mississippi and Texas. Associated with Mr. Winter is S. A. Jones, who gives his attention to the designing and erection work and to the securing of contracts. W. H. Jones, formerly a member of the firm, died in Chicago on May 31, 1913.



WM. CLYDE CHURCH, of Des Moines, Iowa, president and manager of the W. C. Church Lumber Co. and the Minnesota Cedar Timber Co., was born at Guthrie Center, Iowa, on July 24, 1870, and attended the public schools, and the Iowa Business College. He then took a course in the Iowa College of Law. After leaving the law college he served as an accountant for 12 years in Des Moines and then joined the ranks of the cedarmen, and he has been active in this business for 10 years. Since October 1, 1903, Mr. Church has been engaged in the manufacture and sale of cedar poles. He organized the Church-Deal Co., which was dissolved on January 1, 1906. He then organized the W. C. Church Lumber & Coal Co., an Iowa corporation, and the Minnesota Cedar Timber Co., a Minnesota corporation. Mr. Church's connection with telephone companies has been that of stockholder and supplyman. As a prominent dealer in the business of supplying cedar poles for telephone and telegraph leads he is well known to the telephone men throughout the western territory. Mr. Church is a Mason and a member of the Knights of Pythias.



# Traffic Distribution in Manual Telephone Exchanges

**Necessity of Improving Telephone Service by Equalizing Operators' Loads—Three Methods of Distributing Traffic—The Selector Switch System of Automatic Distribution and Its Application to Common Battery Exchanges — Reprinted from The Electrician, London**

By J. Baumann

The most difficult problem in the organization of the service of a manual telephone exchange is the even distribution of the load over the whole staff of operators on duty. The means hitherto employed for the purpose—viz., frequent use of the intermediate distributing frame, ancillary jacks, etc.—have proved quite inadequate, with the consequence that all existing manual exchanges are working with an excess of operators, wasting time, labor and money. The annual value of this waste for the whole telephone service of Europe amounts to several millions.

### Manual Practice in Handling Calls.

The situation is briefly as follows: Consider the case of 10,000 subscribers, on a manual exchange, handled by some dozens of operators. Each subscriber's line ends at a certain operator's position in a signal, by which the subscriber may call the attention of that particular operator, assuming no team work. At the same operator's position from 70 to 100 other subscribers' lines also terminate in signals, and when one subscriber operates his signal, the operator may be idle, or she may be occupied answering another subscriber. In the former case, the calling subscriber is attended to immediately; while in the latter case, he has to wait until the operator has finished with the previous call. During this time an operator at another section of the board may be idle, but she cannot help the waiting subscriber, because she cannot see his signal.

In actual practice the operators at adjacent positions have access to a subscriber as well as the operator on whose position his signal appears, so that any idle operator out of three, may help one of the team. This possibility, however, fails to meet the vicissitudes of the traffic in exchanges of any considerable size, and an enormous waste is therefore caused by the inequality of load on the different operators' positions. The first attempts to reduce this waste, consisted in a frequent use of the intermediate frame, by which the line of a busy subscriber might be transferred from the position of an overloaded operator to one of light load. But nowadays the traffic of many subscribers may change so rapidly and to such an extent that it is very difficult to follow the fluctuations by this method. Even a daily rearrangement of the lines on the intermediate frame, as is usual in many American exchanges, is insufficient for a fair distribution of the load.

A second step in the same direction was the invention of ancillary jacks. In the ancillary jack system each subscriber's line, instead of terminating in one answering jack and one calling lamp, is connected to three jacks with three lamps at different operators' positions, so that every call is shown simultaneously at three positions in the exchange. As any of the three jacks may be reached by three operators, the number of operators available for answering a call is increased from three to nine. It is clear that this multiplication of jacks and calling lamps, promotes uniformity of traffic pressure to a certain extent, and reaches its maximum value in an exchange of nine positions, where the whole staff thus becomes one team. As the number of positions increases, the advantages of the system decrease, and in the case of "Avenue" Exchange (London) there is only one calling lamp for every 41 operators. There are also serious drawbacks connected with the system.

First, in any call the glowing of two of the lamps is superfluous. It would be sufficient if the lamp at the free operator's position only were to glow. Second, if it should happen that the three operators are idle, they may all insert their answering plugs at the same moment, and the work done by two is not only wasted but actually gives rise to confusion. Third, the current consumption of the calling lamps is tripled, and this is only justified if the time during which the lamp is glowing is reduced to one-third of that in the ordinary system. Fourth, for every subscriber, the exchange equipment is increased by two lamps and two jacks with their accessories. This means considerable additional standing charges, inasmuch as any apparatus individually allotted to a subscriber is only used a very small fraction of the available time—say, 2,400 seconds out of the 86,400 seconds per day—and is idle during the remainder. Fifth, owing to the fact that each subscriber's signals affect three operators' positions simultaneously, and, further, that the traffic pressure on these three positions is continually varying, the effect of transferring a subscriber's line at the intermediate frame cannot be foreseen and becomes quite incalculable. A transfer may be beneficial to one position and harmful to the other two, and in most cases it would be preferable to leave the intermediate frame undisturbed.

### Methods of Increasing Efficiency of Operators.

The solution of the problem lies in the provision of a greater number of operators for dealing with any one subscriber. Preferably the whole staff on duty should be accessible to each subscriber. There are three ways in which this may be achieved:

(1) The number of ancillary jacks, with individual signals, may be increased.

(2) Every subscriber may be provided with separate apparatus, which will enable him to select a free operator for completing his connection.

(3) Apparatus, common to the operators, may be provided in the exchange for taking up the incoming calls and forwarding them to idle operators.

The multiplication of ancillary jacks is impracticable on account of the drawbacks mentioned above. The second method is derived from automatic telephone practice. The apparatus corresponds to the pre-selector, which connects the subscriber with an idle set of group selectors. On lifting his receiver, the subscriber operates his individual calling relay at the exchange, completing the local circuit of a driving magnet, which actuates a wiper by steps over a bank of contacts, each of which is connected to an operator. The moment the wiper passes over a contact connected to a free operator it is automatically stopped and the operator signalled, and the insertion of the answering plug connects the operator's cord circuit to the subscriber's line through the wiper contacts. This method is, however, liable to serious objections.

1. The traffic-distributing device, allotted to each subscriber, constitutes a considerable increase in the sub-

scriber's equipment at the exchange. To give access to all operators on duty in the busy hour, it must contain from 60 to 70 or more operators' contacts, in a 10,000-line exchange, and would therefore be a very costly and cumbersome piece of apparatus.

2. As the traffic distributor must be provided for each subscriber's line, the total cost of this additional apparatus may amount to one-half of the cost of the complete exchange equipment. As regards the time this apparatus is in actual use, the same objections hold good as have been raised against the multiplication of the answering jacks and calling lamps, and the standing charges are even greater than in the ancillary jack system.

3. In an exchange with 60 operators on duty in the busy hour, the number of steps in the movement of the wiper may amount to a maximum of 60 for a single call, corresponding to 1,440 movements of the mechanism per day in an exchange like "Avenue." The average will be half this number, and means, of course, a heavy strain on the working parts of the apparatus, with considerable liability to breakdown and rapid depreciation. The maintenance costs for so much sensitive apparatus are higher, and the total working expenses of the exchange are considerably increased.

4. In most exchanges subscribers are not all entitled to the same service facilities. If there be two kinds of service, and one calling lamp is indiscriminately used for any subscriber, the traffic must be divided in such a manner that each section of subscribers has its own staff of operators. The equality of distribution is thereby reduced to less than half of that attained by combining all the subscribers with the whole staff of operators.

The third method of distribution may be applied in the following manner: The subscribers are divided into groups of 50, 100 or more. The subscribers' lines of one group are each connected to separate contacts arranged on the circumference of a circle, in the centre of which there is a continuously rotating spindle, and on this spindle is mounted a wiper, which traverses the contacts on the circumference. When a subscriber lifts his receiver, current from a central battery is sent over the subscriber's line and through an electromagnet at the exchange. At the moment the wiper touches the contact connected with the calling subscriber's line, the electromagnet is energized and stops the wiper at that point. This closes a circuit connecting the contact to a second continuously rotating switch. On making contact with a free operator's connection, the wiper of this second switch is stopped in the same way, and a calling lamp glows under the subscriber's jack on the selected operator's position. The operator inserts her answering plug, the two-switch electromagnets are de-energized, and the switches immediately proceed to hunt for a second calling subscriber in the group.

An application of these principles to the Western Electric common battery system is shown in the diagram. $A_1$, $A_{11}$ are two subscribers' stations, and $a_1$, $a_2$, $a_3$, $a_4$ are four subscribers' lines connected respectively to their calling contacts $b_1$, $b_2$, $b_3$, $b_4$. On lifting the receiver at $A_1$ current flows from battery $B$, through a calling relay $v$, common to the subscribers of the group, by way of the line and station $A_1$. The armature of relay $v$ completes the circuit of electromagnet $y_1$, of switch $C$. The rotating spindle of this switch carries at its lower end an iron disc, $e_1$, to which the insulated wiper $f_1$ is attached. This wiper passes over contacts $b$ arranged in a circle and insulated from one another. There are as many contacts in each switch as there are subscribers in one group.

Beneath the iron disc $e_1$ is a jacketed electromagnet carrying an insulated brass ring, $k_1$, in continuous contact with the wiper $f_1$, and an insulated contact spring, $i_1$, sliding upon another ring, $k_{11}$, connected to the common battery, is attached to the lower end of the wiper. The contacts $l'_1$, $l''_1$, $l'''_1$, etc., are connected by leads $m'_1$, $m''_1$, $m'''_1$, etc., to the second rotating switch $D$, each of the contacts $l'_1$, etc., corresponding to one of the subscribers' contacts $b'_1$, etc. The conductors $m'_1$, $m''_1$, $m'''_1$, etc., lead to fixed metallic rings $n'_1$, $n''_1$, $n'''_1$, etc., mounted on the cylindrical core of the switch $D$, and these rings alternate with, and are insulated from an equal number of rings $p'_1$, $p''_1$, $p'''_1$, etc., subdivided into insulated segments. The number of segments is equal to the number of multiple sections in the exchange; each segment is connected to a signaling lamp $q'_1$, $q''_1$, $q'''_1$, etc., at one multiple section.

In switch $D$, a vertical arm, $r$, of insulating material, carrying metallic wipers $s'_1$, $s''_1$, $s'''_1$, etc., is kept in continuous rotation, so as to connect rings $n'_1$, $n''_1$, $n'''_1$, etc., successively to the adjacent segments of rings $p'_1$, $p''_1$, $p'''_1$, etc. An electromagnet, $t_1$, is connected between the battery and ring $k_1$; its armature is a rotating iron disc carrying the arm $r$, and otherwise similar to the armature of switch $C$.

The operation of the circuits is as follows: On lifting the receiver at $A_1$ the calling relay $v$ is actuated as soon as the wiper $f_1$ touches the contact $b_1$ connected to the calling subscriber's line, thus energizing electromagnet $y_1$. The rotating iron disc $e_1$ is disengaged from the rotating spindle $d_1$, and holds the upper end of the wiper $f_1$ tightly against the contact $b_1$. At the same time spring $i_1$ is lowered into contact with $l_1$, completing a circuit from battery $B$ through the winding of electromagnet $t_1$, ring $k_1$, conductor $m'_1$, ring $n'_1$, wiper $s'_1$, the adjacent segment of ring $p'_1$ in contact with $s'_1$, and the calling lamp $q'_1$ on the first operator's position. The operator inserts her answering plug and the cut-off relay $u_1$ of the calling subscriber disconnects the common relay $v$ from the subscribers line.

The armature of this relay is released and breaks the circuit of electromagnet $y_1$; the iron disc is lifted by a spring, breaking the contacts $f_1$—$b_1$ and $i_1$—$l'_1$, and re-engaging with the rotating spindle. The electromagnet $t_1$ being thus de-energized its armature is also lifted and re-engages with the spindle of switch $D$. The wiper $s'_1$ thus leaves the segment connected to lamp $q'_1$ and passes on successively to segments connected to lamps $q_2$, $q_3$, etc., on other operators' positions. In the meantime lamp $q'_1$ has been extinguished by the breaking of contacts $i_1$—$l'_1$.

Having inserted her answering plug, the operator throws her listening key, and by so doing, not only connects her talking set to the subscriber's line, but also closes the contact $w_1$ and energizes a relay $x_1$, the armature of which breaks an earth connection common to all calling lamps on the operator's position. As a contact, $w$, is provided in every listening key, it is imposible for a second call to arrive at that position as long as the operator is using any of her keys for listening, but having answered a call and thrown the key to the ringing position, the operator may receive another call from any subscriber. Testing and completing the connection is done in the usual manner.

If it should happen that, during the brief interval between the appearance of the signal and the insertion of the answering plug, a call comes from another pair of rotating switches, $C_1D_1$, to the same operator's position, this second call would be immediately cancelled by operating the listening key; the armature of switch $D_2$ would be released and would continue hunting for another free operator. Such a call may also be attended to by an adjacent operator before it has passed forward to another position. The relay $x$ may evidently be used to record the time an operator is holding her listening key in the working position. In this way an invisible, impersonal, and therefore absolutely impartial supervision may be kept on the work done at every moment by each operator.

The usual pilot lamp may be included in the common earth connection for the calling lamps of an operator's position, and

for measured rate subscribers, meters may be provided in the ordinary way. No separation from the flat rate subscribers is necessary, the whole traffic being distributed over the entire staff on duty. It is also evident that the number of operators kept on duty may follow the requirements of the load by steps of one operator, members of the staff being dismissed one by one, beginning at the end of the switchboard. For this purpose it is only necessary to throw a listening key on all vacated positions.

If every subscriber is provided with a calling lamp in every section of the multiple, during night time the whole exchange could be operated from one section, or three operators' positions. The inconvenience, in night operating, of having to watch the whole switchboard of the exchange is thus avoided. In an ordinary exchange, there is, however, no necessity for all subscribers to have a lamp in every section. In the case of exchanges with 4,000 to 10,000 subscribers, 50 per cent. of the whole traffic is originated by 25 per cent. of the subscribers. The traffic of these subscribers (flat rate) is also the determining factor of the busy hour load. The remaining subscribers are partially flat rate and partially measured rate, and the division of the other 50 per cent. of the traffic is governed by the proportion between them.

Under ordinary circumstances it may be assumed sufficient if 25 per cent. of the subscribers' lines are represented by a lamp on every section of the multiple; 30 per cent. by a lamp on every second section; and 45 per cent. by a lamp on every third section. By such an arrangement the whole service can be concentrated during periods of minimum load to three multiple sections, or nine operators' positions. If the switches, *D*, are all of the same pattern, having the same number of segments for each class of subscriber, it is convenient to cross-connect two diametrically opposite segments in the case of a subscriber having only one lamp on every second multiple section. The effect of this is that the subscriber, having stopped switch *C*, is signaled twice per revolution of switch *D*, to the operator corresponding to the connected pair of segments. Similarly the segments can be cross-connected at 120 deg. for subscribers having lamps only at every third multiple section. This, to a certain extent, compensates for the reduction in the number of operators accessible to the subscriber.

The operation of switch *C* may be briefly considered here. It is provided with one wiper making a complete revolution in two seconds. On the average, the wiper makes connection with a subscriber's line one second after the receiver has been lifted. This delay is reduced to ½, ⅓ or ¼ second if two, three or four wipers are provided, arranged so that no two wipers make contact at the same time. Switch *D* makes one revolution in ¼ second, so that the mean time occupied in lighting a subscriber's lamp is ⅛ second, every segment having its own lamp. If there were four wipers in switch *C*, a subscriber with a lamp on every multiple section therefor occupies a maximum of ¼+⅛=⅜ second from the moment of lifting his receiver to the appearance of his signal at the operator's position. As the operator has only this call to attend to, the subscriber is answered in ½-2½ seconds.

This is the minimum, and is the time occupied in the case of all calls following one another at intervals of at least 1½ to 2½ seconds, that is, for by far the greater number of calls. If it should happen that two subscribers on the same switch *C*, lift their receivers within an interval of 1½ to 2½ seconds, the subscriber whose contact is nearer to the wiper is answered first. If 10 out of the 100 subscribers on the same switch *C* lift their receivers at the very same instant—a case that is scarcely possible—assuming four wipers arranged at right angles, the maximum time a subscriber has to wait is 2.5+2.5+1.25+0.25=6.5 seconds, the average time being 2.08+0.12=2.20 seconds.

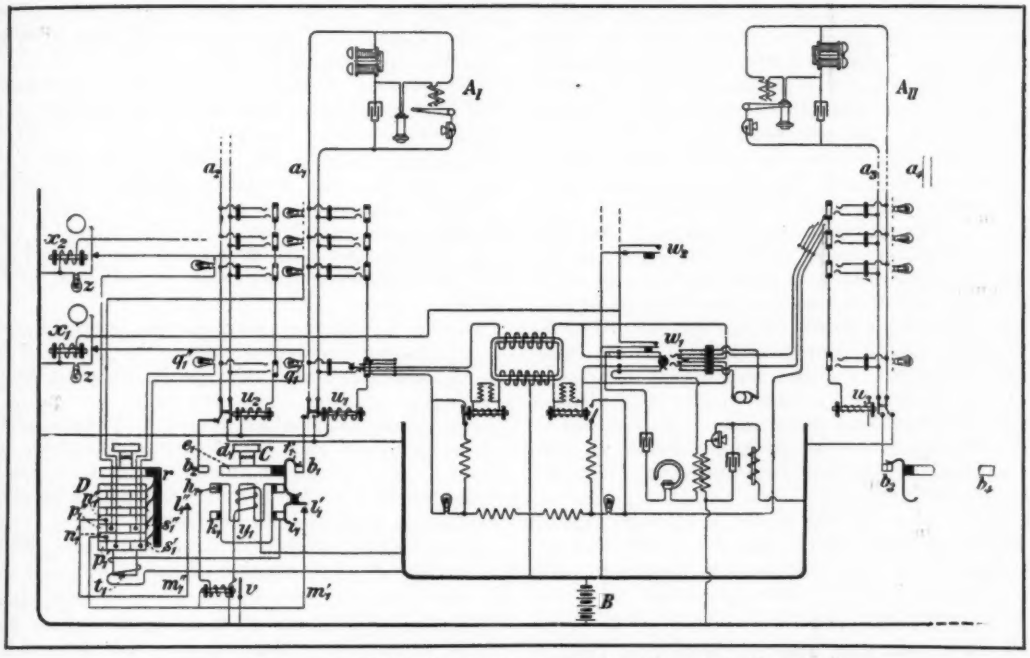



Diagram of Baumann Distribution System Applied to Common Battery Working.

Comparing this with the case of a manual exchange, suppose 10 subscribers on one operator's position to call simultaneously, while the adjacent operators are also busy, then the minimum waiting time will be 54 seconds for the last subscriber, on the assumption that every call takes 6 seconds to complete. It is readily seen, therefore, that the introduction of the rotating switch actually increases the rapidity of the service to a very considerable extent, and that the automatic and continuous distribution of the traffic, effects a great economy, not only in the operator's time, but also in that of the subscriber, who in the ordinary common battery system is called upon to wait, on an average, over 10 seconds, and frequently 30 seconds or more. As for reliability, it is evident that 100 rotating switches each with 100 subscribers' connections, are far more reliable than 10,000 distributors individually allotted to the subscribers. The

(*Continued on page 35.*)

# Proceedings Before Commissions, Courts and Councils

**Discussions and Rulings of State Bodies Having Supervision of Telephone Companies, Decisions of Courts in Matters Affecting Public Relations of Utilities, and Actions of City Councils Bearing Upon Franchises, Rates and Service**

### Standard Form of Interchange Agreement in Canada.

There has just been issued by the Dominion Board of Railway Commissioners an order which is of far-reaching importance. The Bell Telephone Co. of Canada has hitherto refused interchange of business, unless by long distance, between Independent companies whose lines go into a Bell switchboard. The general order just issued comes as the result of several meetings before the board, of Bell representatives and representatives of Independent telephone companies, in which they strove to arrive at a satisfactory basis for a standard form of agreement. The new order sets forth how all connections between the Bell and local companies are to be arranged for. It does not fix the terms or charges, as these would vary according to the amount of the local company's business, but the new form of agreement eliminates the possibility of any objectionable clauses being included, such as the limiting of territory or agreeing not to connect with any other local company. Also it fixes the switching charge for handling through a Bell board all calls coming from a local company over the lines of another local company connected with the Bell board, at five cents for each call.

The agreement purports to deal with non-competing companies, that is, companies the Bell does not object to. But the new order of the board provides that in the event of either party entering into competition with the Bell, the contract may be terminated by the board upon application by the party aggrieved and proof of the existence of such competition, and the connection may then be so continued only over long distance. The effect of this order is that the Bell company cannot any longer refuse to continue connection with a company which becomes a competing company, but must continue to give long distance connection under the terms of the agreement as settled by the board. The general terms and conditions of the order are such as would be arranged for interchange of traffic on a fair and reasonable basis.

The Dominion board further makes it necessary that all agreements affecting telephone companies in Ontario must be passed upon by the Ontario Railway & Municipal Board, which is considered a very desirable provision.

### Hearing as to Five Cent Rate for New York City.

The Public Service Commission of New York held an all day hearing in New York City on November 24 on the application of W. H. Winkler, a lawyer, for a reduction of rates of the New York Telephone Co. to five cents throughout New York City and for an elimination of interborough tolls. The hearing was attended by the representatives of a large number of organizations and many individuals. Mr. Winkler conducted his own case. He called attention to the various alleged inconsistencies in the New York rates and pointed out, for example, that from his own office he was frequently compelled to call up a Brooklyn number less than two miles distant, and for this service he was charged 5.8 cents as a local call, to which was added a five cent toll charge, making the total charge 10.8. He submitted a comparison of rates charged in 35 cities and thought that Chicago's rate of $40 for 800 calls should be adopted in place of New York's rate of $48 for 600 calls.

Toward the end of the day's hearing J. L. Swayze, general counsel for the New York Telephone Co. admitted, it is stated, that the time had come when there must be a comprehensive examination of rates in the whole city, no matter what was the result. He said that if the company could not meet the proposed reduction it was entitled to an appraisal of its property and an examination into its original cost. It was stated that the company would welcome a "comprehensive examination to bring an end to the attacks on the schedule if possible."

Assemblyman Mark Goldberg, who was present at the hearing, demanded that Mr. Winkler subpoena Ex-Governor William Sulzer to appear before the commission and that he demand "why Mr. Sulzer had asked Assemblyman Jesse P. Larrimer, of Brooklyn, to recall his telephone bill on the last day in which it had to be either vetoed by the governor or become a law." He wanted to know "whether the $10,000 campaign contribution of the New York Telephone Co. to the governor's campaign fund had anything to do with it."

A feature of the hearing was Lawyer Winkler's charge that the Merchants' Association had attempted to sidetrack the telephone inquiry by its recent correspondence with Vice-president F. H. Bethell, of the New York Telephone Co., in which the latter agreed to co-operate in the psysical valuation of the property to be made by the Interstate Commerce Commission. He thought it significant that Ex-Governor John W. Griggs, who is general counsel for the Merchants' Association, is a director of the telephone company.

During the hearing Commissioner Decker declared that if a valuation proceeding was to be instituted it ought to be undertaken and paid for by the city and not by the state.

In closing Mr. Winkler desired to know why the telephone company paid the American Telephone & Telegraph Co. 4½ per cent. of its gross earnings for rentals of the Pupin loading coil. He said, too, the company had put $2,000,000 aside as an employes' benefit fund.

Commissioner Decker set December 22 as the date for a resumption of the hearing.

### Hearing on P. B. X. Rates in New York City.

The Public Service Commission of New York held a hearing in New York City on November 28 on the complaint of Harrison B. Weil, a lawyer, who appealed particularly in the matter of the charges on private branch exchange switchboards. Associated with him as complainants were various associations and individuals. In April, 1912, Mr. Weil entered into a contract with the telephone company for a switchboard and two sets of telephones for use in his office at the rate of $204 a year, of which $48 was in payment of two trunk wires, $36 for the switchboard and $12 for two extension stations. Complainants declared that the charges were out of proportion to the cost of the equipment and of the service.

A. D. Welch, commercial engineer of the New York Telephone Co., was on the stand the most of the day. Mr. Welch said that 48 per cent. of the business of the company was delivered to private exchanges, for the necessities of the business now required the development of this branch of the service. The complainants submitted an array of figures showing that the cost of maintenance and the allowance for deterioration were constantly decreasing factors and Mr. Welch admitted

that putting the wires underground had made a considerable reduction in the cost of maintenance during the past ten years. The hearing was adjourned until December 22, the date of the adjourned hearing on the complaint of W. H. Winkler.

**Large vs. Small Telephone User in New York City.**

W. A. Marble, president of the Merchants' Association of New York, has issued a statement in defense of the Association's negotiations with the New York Telephone Co. for a fundamental valuation of the company's property by the Interstate Commerce Commission. The plan of the complainants in the present investigation for a five cent rate as a maximum for all of Greater New York, is declared to contemplate the reduction of rates to those only who are charged on a message basis, or in other words to those "who contribute only a minor portion to the revenues of the company and suffer only in a minor degree from any excessive charges." On this subject the statement says:

The Merchants' Association contends that any benefits which may be derived from reduction in rates should be shared pro rata by all classes of consumers and particularly that the large consumers who pay from $250 to $15,000, or $20,000 a year, are entitled to full consideration and proportionate relief. It further contends that any large scheme of rate adjustment which regards only the small users and appropriates to their benefit a large part of the present revenue of the company, is in its essence discriminatory, in that it disregards the rights of the most important body of consumers and grants to a lesser class rates that are unduly low.

The statement says that if the desired valuation cannot be made within a reasonable time by the Interstate Commerce Commission, it is proposed to present the facts to the legislature and urge upon that body the appropriation of a sum sufficient to enable the Public Service Commission to make the valuation.

**Suit to Dissolve Merger at Lexington, Ky.**

A suit has been filed in the Fayette Circuit Court at Lexington, Ky., by Milton Young and Jean T. Payne, with the purpose of dissolving the recent merger of the Fayette Home Telephone Co. and the East Tennessee Telephone Co., to restore competition and to re-establish the rates existing under the old franchise of the Fayette company prior to the consolidation.

It is alleged that consent to the merger was secured from the city council of Lexington and the state railroad commission through representation that there would be no raise in the rates, but that when the merger was completed the rates were raised. The petition recites that the actual value of the tangible property is $125,000, that its annual operating expenses are $60,000, that wear and tear will not annually exceed $12,500, and that the gross receipts are practically $140,000.

It is alleged that the capital stock has been increased to $800,000, of which $500,000 is common stock, and that there is a bonded indebtedness of $205,000.

The petitioners pray also that Section 99 of the acts of the legislature of 1912 be declared unconstitutional, and that the merger thereunder be held illegal.

**Pennsylvania Commission Takes up Valuation Question.**

The Public Service Commission of Pennsylvania recently resumed hearings in reference to its proposal to enforce a general reduction of telephone rates throughout the state. At the resumed hearings, after various Independent telephone representatives had been heard, the Bell Telephone Co. of Pennsylvania began, through the testimony of Nathan Hayward, chief engineer of the company, the introduction of figures which, it is claimed, were the result of more than a year's study in an attempt to arrive at an inventory of the property of the company in Pennsylvania. Mr. Hayward placed the total valuation of the company's plant at $77,676,149, and presented the various items going to make up this amount.

The company's attorney, J. L. Swayze, in referring to the commission's invitation to the company to be present, said the company understood that this opened up a full, complete and comprehensive inquiry into the entire rate situation in the state. He said that in making its decision on rates, the commission should take into consideration the original cost of construction of existing property and useful permanent improvements; the market value of stocks and bonds; the probable earning capacity under rates prescribed by statute, ordinance or municipal contract, or fixed or proposed by the commission; the items of expenditure for obsolete equipment and construction; the replacement charge, reproduction costs of the property, based upon the fair average price of materials, property and labor; and the development and going concern value of the company.

**Report on Detroit Investigation.**

The Michigan Railroad Commission has issued a report regarding telephone service in Detroit, based upon the investigation made by Chairman Hemans; C. B. Hall, chief of the telephone department of the commission; Thomas McCormick of the state tax commission; and W. H. Foster, of Detroit. The commission finds that the main fault lies in the fact that the service is overloaded with unnecessary calls that should be eliminated.

The overloading applies to every class of service, the party lines, which are used by 52 per cent. of the subscribers, showing many more calls per day than are normally allowed, while the downtown offices and stores that allow outsiders to use their lines are responsible for their share of the congestion. Telephone conversations were found to exceed the time limit as well as the number limit, 99,450 conversations a day lasting more than five minutes. The party line users were found to turn in 178,280 calls per day in excess of the normal allowance.

The report says that the Michigan State Telephone Co. has enough operators and sufficient exchange facilities for the population but is to blame for not enforcing contracts for limited service; and adds that the service could be brought up to standard efficiency if the excess calls were eliminated. Metered service, it is stated, would remedy the conditions, but even with the present contract rates the commission finds that conditions could be greatly improved by forcing party line users making more than the maximum number of calls to take a higher class of service.

Much dissatisfaction with the report of the commission is being expressed by aldermen, city officials and business men of Detroit, who strenuously object to the measured service proposal, declaring it to be a plan which would raise the revenues of the company without resulting in any improvement in service.

**Bell Brief in Oregon Physical Connection Case.**

A brief recently filed by the Pacific Telephone & Telegraph Co. with the Oregon Railroad Commission alleges that the company would loose annually $25,000 in rentals if the commission should decide in favor of the Hotel Oregon, of Portland, in the complaint asking an interchange of service between the Bell system and the Home Telephone & Telegraph Co. It is declared that other hotels in Portland are negotiating contracts with the Pacific company and, if the complainant is successful, they will discontinue the Pacific service because the Home company service is cheaper.

In regard to the suggestion made at the hearing that the Pacific company meet the situation by reducing its rates to the level of the Home company, the brief declares that the company has in Portland approximately 40,000 subscribers as against 13,500 of the Home company, and that the Pacific company's plant investment used in serving these subscribers is over $4,650,000.

The hotel, it is averred, is receiving service at a flat rate from both companies and the connection asked would give to the patrons of the hotel, at the Home company's rates, connection with the entire system of the Pacific company throughout Washington, Oregon and California, a radius of at least 750 miles. It is declared that 57 hotels in Portland are receiving service on the same basis as the Hotel Oregon.

The brief further declares that "it was not the intent nor the purpose of the public utility act, even if it be construed as giving the commission power to order a physical connection, to give the telephone companies any right with reference to other like companies which they did not enjoy at common law."

### As to Metered Service for Indianapolis.

In connection with the proposal of the Central Union Telephone Co. to present a new schedule of rates for Indianapolis, and the possibility that the Public Service Commission of Indiana will make an appraisal of the company's property independent of the appraisal already undertaken by the company for its own information, the Indianapolis Star is urging a thorough examination of all the factors that enter into rate making. This is with a view of establishing classifications on a scheme as nearly scientific as possible, based on the utility of the telephone in each group. Payment on a measured basis is proposed as preferable to an adjustment that would advance residence telephone rates, for the reason that the commercial value of the telephone in the retail districts will be reduced if rates are adopted which curtail the number of home telephones.

### Appraisal in York County, Nebraska.

John Stone, formerly construction superintendent of the Tri-State Telephone & Telegraph Co., of St. Paul, Minn., has been selected to make a valuation of the York county plant of the Lincoln Telephone & Telegraph Co., under the supervision of E. W. Bemis, of Chicago. The subscribers of this exchange were dissatisfied with an appraisal made by the engineers of the Nebraska Railway Commission, and the commission therefore called in outside engineers.

### Progress of the Vermont Investigation.

After spending three weeks on the witness stand in the telephone rate investigation now being made by the Vermont Public Service Commission, General Auditor Longley of the New England Telephone & Telegraph Co. last week completed his testimony.

### Summary of State Commission Hearings and Rulings.

CALIFORNIA.

November 21: Application by Nevada, California & Oregon Telegraph & Telephone Co. for authority to issue $27,500 of bonds; of which $20,000 will be used to acquire the property of the California & Oregon Telephone Co. and $7,500 to pay off existing indebtedness.

GEORGIA.

December 10: Hearing continued from October 14 in the case of the city of Columbus against the Southern Bell Telephone & Telegraph Co., which in November, 1912, advanced its rates 50 cents a month under an alleged agreement with the city to advance rates automatically when it had secured 2,500 subscribers. It is stated the company will be required to submit proof of the actual cost of its plant, operating expenses and other data.

INDIANA.

No dates will be set for the hearings at different points in southwestern Indiana on the petition of the Cumberland Telephone & Telegraph Co. to raise rates, until after the commission has disposed of the arbitration of the street railway and interurban strike. This means a month's delay at least.

MASSACHUSETTS.

November 26: Order requiring all corporations under the commission's jurisdiction to submit quarterly statements showing the amounts paid to attorneys, legislative agents, newspaper writers and advertising agencies.

MICHIGAN.

November 26: Application by Okemos Independent Telephone Co., of Okemos, Mich., for authority to increase rates.

MISSOURI.

Date not fixed: Hearing on motion of Southwestern (Bell) Telegraph & Telephone Co. for modification or setting aside of general order No. 4, which order directs telegraph companies to have same listing and service by number as given other subscribers in the same exchange.

November 24: Petition by Webb City vs. Home Telephone Co. of Webb City as a formal step to bring about a consolidation of Bell and Home systems under the management of the Home company.

NEW YORK.

December 3: Hearing at Albany on an order requiring the Oswego County Independent Telephone Co. to show cause in the matter of the unauthorized issuance of $3,000 of bonds.

December 5: Hearing at Utica on complaints of P. E. Lewis, of Utica; A. P. Seaton and G. A. Dagwell of New Hartford; G. T. Anderson, of Whitesboro; A. A. Cole, of Whitestown; and E. E. Griffiths, of Yorkville, against the New York Telephone Co. as to telephone rates.

December 22: Resumption of hearing on complaint of M. H. Winkler for a five cent rate throughout New York City and the elimination of interborough tolls. Previous hearing November 24. Also resumption of hearing on complaint of Harrison B. Weil as to P. B. X. rates.

OHIO.

December 16: Hearing on complaint of H. B. McGraw that the Bell and Morgan interests have a monopoly of the telephone business in Ohio and that any merger, especially in Cleveland, should be prevented.

January 6, 1914: Hearing at Cleveland on the complaint of Harrison B. McGraw against the Cleveland and Cuyahoga telephone companies.

PENNSYLVANIA.

November 19: Petition by Pittsburgh Chamber of Commerce and submission of information which will bring the grievances of telephone subscribers as to rates and contracts in Pittsburgh before the new commission when it comes into actual operation on January 1.

SOUTH CAROLINA.

December 17, 18: Postponed hearing on complaint of the Postal Telegraph-Cable Co. that the Southern Bell Telephone Co. is discriminating in favor of the Western Union Telegraph Co.

SOUTH DAKOTA.

Date not fixed: Hearing on complaint from Highmore as to telephone service in which the Hyde County Telephone Co. is defendant, and an application of Hyde County Telephone Co. for an increase in telephone rental rates. Depositions have been taken and hearing will be fixed as soon as inventory of plant has been filed.

Date not fixed: Hearing on petition of Northwestern Telephone Exchange Co. for increase in telephone rental rates at Sioux Falls, with consolidation of New State Telephone Co. and the Northwestern Telephone Exchange Co. One hearing has been held and final hearing will be held as soon as company has filed inventory and other information required by commission.

TENNESSEE.

November 22: Order granting a petition of the Cumberland Telephone & Telegraph Co. and 75 per cent. of its subscribers in Maury county, to install a common battery system and raise the rates on business telephones to $3.50 per month and on residence telephones to $2.

WASHINGTON.

December 13: Long distance tariffs at Pacific Telephone & Telegraph Co. suspended until this date.

WISCONSIN.

November 25: Complaint by H. P. Howard protesting against the change from "pay after" to "pay first" telephones by the Wisconsin Telephone Co.

# The Rejuvenation of the Craneville Telephone Exchange

**A Serial Story Begun in the August 16 Issue, Telling How a Rundown Telephone Plant Was Rebuilt, Enlarged and Changed Successively from a Grounded to a Local Battery Metallic System and Later to Common Battery**

**By Paul Hamilton**

"There is another device for cutting the circuit to ground that is ordinarily used in connection with the carbon blocks. It is designed for a purpose for which the carbon blocks and other fuses are inadequate."

"I guess I see him here," Germany commented as he looked over the illustrations in a catalog. "It's this little spool, what?"

"That's it, Germany. That's what is known as a heat coil. Its purpose is to take care of any current flow upon which the plain fuse and the air gap devices do not operate.

"Remember that a steady flow of current, unless it is alternating, and of high frequency, will seldom arc across the air gap. A sudden flow or impulse, is necessary. The heat coil will ordinarily stand up under a sudden impulse. But a steady flow of current, meeting with resistance in the winding of the coil, heats the German silver wire, likewise the fuse or core around which it is wound."

"Does it burn out and open the line?" Frank inquired, looking at the sketch (Fig. 32) Mr. Barrows had drawn.

"No. It belongs to the grounded circuit type of protection. You notice there is a collar fitted to the pin near the end. When the coil is inserted between the arrester springs, the collar holds the pin away from the ground bar. Where the current is sufficient to heat the pin, the collar becomes unsoldered, that is the solder holding it to the pin melts and the presure of the springs pushes the pin through the collar, against the ground bar."

"Then I suppose the coil can be taken out and repaired?" Germany asked.

"No. That is not practicable. In the first place, we have no way of learning the condition of the winding. It may be short, open, or crossed with the pin. On this type of coil, the safest way is to replace it with a new one."

"Is there more than one kind of heat coil?" Frank inquired.

"Oh yes, there are several. There is one which is used considerably that operates just opposite to this one. That is, the coil is so made that it holds the arrester spring away from the ground bar. When heated, it pulls apart and lets the spring come against the ground bar. You have probably heard of a sneak current arrester?"

"I've heard of him, but didn't know what it was," said Germany.

"Well, the heat coil is what is meant. We would not need it here if the electric light plant had not been instituted," continued Mr. Barrows.

"I understand these will be installed in the exchange," said Frank.

"And at the subscriber's instrument also, except where the line is underground. Of course, we have nothing of that sort here."

"Then after every storm, we will have to go to the instruments and clear the grounds. Isn't there any automatic kind that will clear itself?" asked Frank.

"There are several, but none that have come into general use. We may try some of them later on, but will not take the time to look them up now," the proprietor stated, closing his book and arranging his papers preparatory to going home. "I guess we've had enough for tonight unless there is something that you'd like to ask."

"Well," said Germany, "I think I got him clear, that every line will have all three kinds of protection at both ends—the fuse, carbons and the heating coil."

"Only except it's just a plain heat coil," suggested Frank.

"That is correct," said Mr. Barrows, "and in addition to that, when we get the cables installed, there will be fuses between the aerial wire and the cable. But we will come to that later."

"It's a wonder this whole plant didn't blow out or burn up long ago," commented Frank.

"Well, you've made a pretty good showing. There are about 25 drops in the board burned out and most of those instruments upstairs show the effects of lightning in the coils. Protection is far less expensive than replacements, and besides nowadays the insurance underwriters require protection. About the first thing to be done with a new device is to secure approval of its use by the board. We will leave the rest until Thursday. Good night, boys."

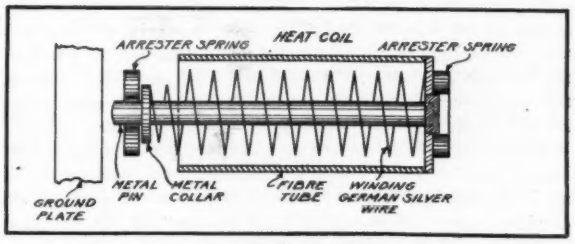



**Fig. 32. Details of Heat Coil.**

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During the first few weeks Mr. Barrows had seen very little of Mr. Rankin. In fact, it was not until the work of putting the plant into condition was well under way, did the former owner have more than a passing remark when he chanced to meet the new proprietor. However, one morning soon after work had been started on the electric light plant, the dealer in real estate and owner of the livery came into the exchange.

"Well, Barrows! How goes the battle? I see you've turned a trick or two already," he remarked by way of opening the conversation.

"Oh, I can't complain," returned Mr. Barrows. "I have had to go a little faster than I expected, but things seem to be coming around all right."

"Seen the Gazette this week?"

"Not yet. What's up now?"

"Well I'll tell you, Barrows, you don't need to stand for that paper's yawping, if you don't want to. I can shut it off like that," and Mr. Rankin snapped his fingers by way of illustration, "if you want me to. I've got a twist on the owner."

"I surely appreciate your offer, Mr. Rankin," Mr. Barrows answered, "but so far, it hasn't done any harm. In fact, I've rather encouraged the editor, by giving any real information I have had, to the Banner. It's settled down to a controversy between the two editors and the public forgets all about their own troubles while it lasts. Maybe we'll want the soft pedal put on after awhile."

"Well, I hadn't thought of that," Mr. Rankin replied, "but

that isn't all I came in about. You know I'm pretty heavily interested in the electric light business. As long as we are going to use the same poles, it has been suggested that the two companies could be merged to a good advantage. I don't see why it wouldn't be a good scheme. You've no doubt a considerable knowledge of the lighting business, and we haven't a local man who knows a blame thing about it. It's a new game for us."

"I'll tell you, Mr. Rankin, what my opinion is," returned Mr. Barrows to this proposition. "Taking the thing as a general proposition, I feel that for the present I have all I can conveniently attend to in order to hold my own. Now, on a merger proposition, I would be in a minority, so to speak, and the telephone end of the scheme would receive secondary consideration.

"I wish also to correct the idea which prevails that there is a common interest or relation between the electric lighting and the telephone business. Beyond the fact that they utilize wire, poles and electricity, there is nothing to establish such a belief. No part of the equipment is a duplicate of the other; and no part of one can be used by the other at a saving of machinery, etc. The only object in merging any two enterprises is to economize in operating, in overhead expense, or in duplicated machinery. In our case, none of these ends can be accomplished. The council brought about the only economy by compelling us to use the same poles."

"I see the force of your argument," said Mr. Rankin, "and I guess you're right. But I wanted you to become interested in the light plant. Another thing, I rather miss the telephone game, and wouldn't mind getting back into it again. Maybe there'll be a time when you will want to branch out and will need more capital. If there is, let me know."

"There may come a time," Mr. Barrows replied, "when I shall want to build some toll lines, and am glad to know where I can look for the capital. At present, however, if I had any spare money, even though it might be earning me a good rate of interest, I think I'd try to get control of the water power at Three Forks bridge. With a power house there, you would soon be furnishing all the current for light and power in the county. For instance, you could furnish current for the plant here in Craneville so much cheaper than it can be produced here, that they'd be bound to buy from you."

"Say, Barrows!" Rankin exclaimed. "You won't lose anything by keeping that under your hat. I've got enough of the scheme in my head to know what to do next. But I shall want to talk to you later about it.

"Just bear in mind, if there is anything you want in the telephone line down at the city hall, or anywhere else, and you think I can be of any service to you, just say the word," were Rankin's parting words.

Just after Mr. Rankin left the exchange, Frank came in.

"Mr. Barrows," he said, "John Willis just asked me if we can get ready to put a telephone in his new house. He's building quite a place, but it won't be finished for some time."

"Well, Frank," Mr. Barrows replied, "in cases of that kind, it will pay us to do the inside wiring ahead of the plasterers. That gives us an opportunity to conceal our wires without having to bore through the plaster and spend time fishing between the walls."

"But when the wire is behind the plaster, there isn't any chance to clear trouble, is there?" Frank inquired.

"There is small chance of any trouble, for there is no chance of the wire being disturbed if the work is properly done."

"I suppose we will use two-strand wire," Frank observed.

"No," answered Mr. Barrows, "on all new work use three-conductor wire. For awhile we will ring to ground, as we do now, but later on we will cut the lines metallic. The third wire will then run from the bells back to the protector ground. We shall then be able to test the protector ground from the office. I will explain that idea at another time."

"Then the protector will not be at the instrument?" queried Frank.

"No. The general practice is to locate the protector inside the building as near as possible to the point where the leading-in wires come through the wall. There are some other points to bear in mind when locating a protector. In fact, there are so many things to consider in the inside wiring work, that I think we had better take up the subject at one of our evening discussions. In the meantime, if you have an opportunity, you may tell Mr. Willis that we will be glad to wire his house. Get the location of the instrument and where the leading-in wires will come. The drop should be carried to the basement if possible. Then you can estimate the amount of material you will require for the job," and Mr. Barrows dismissed further consideration of the matter for the time being, by turning to the work upon the desk before him.

He was allowed but a brief interval to consider the matter in hand, before being interrupted. Miss Dietz called to him from the switchboard.

"Mr. Barrows," she began, "that clerk down at Schroeder's wants me to take down a list of numbers and call them for him. I haven't the time to do it and anyway, people don't like to wait after I ring them. What shall I do?"

"There are more reasons than one why we should not call lists for our subscribers. If we should overlook a number, there would be just cause for complaint. Errors and oversights might occur in keeping the list corrected to date. Then, as you say, people do not care to wait when called to the telephone and there is no way to avoid that, without giving the line undivided attention. I think I had better call and explain the situation to Mr. Schroeder. Of course, I shall promise him prompt attention to his clearing-out drop. Are you having any other difficulties?"

"No sir. I think I am getting more calls every day and people are calling more often by number. Oh yes! Mrs. Garvey doesn't want me to give her hired girl any numbers, except the grocery and market."

"That is another instance where we cannot discriminate. Mrs. Garvey will have to arrange some other way. You may explain to her that you have no way of knowing who is making the call. We cannot deny anyone a connection."

"She wanted to know if we couldn't shut the telephone off when she is not at home," Nellie added.

"We cannot undertake to do that, either. In the first place, we have no method of opening the line automatically, and, if we had, she would have no way of notifying us when to put it back into service, if she thought of it at all. If you cannot make it clear to her, put her on my line the next time she calls."

"Dr. Brown has a new hired girl. I guess she's Swedish. Anyway, he says she gets his calls all mixed up. He wants to know if we can't take his calls for him until she learns a little more English," Miss Dietz continued.

"I'll have to see the doctor, I guess. His calls may be important—sometimes matters of life and death depend upon prompt attention—but we cannot assume the responsibility. He might arrange to have the calls taken at one of the drug stores. The two other doctors would probably want the same arrangement. I'll let you know later about it," Mr. Barrows advised.

*(To be continued.)*

### To Increase Rates at Albany, N. Y.

The New York Telephone Co. has notified Mayor Gray of Albany that on January 1, 1914, there will be an increase in telephone rates.

# Practical Subjects—Letters and Discussions

### Salt Fogs Along Sea Coast.

I would like to ask, through the "Practical Subjects and Discussions" section, if any of the readers of TELEPHONY have had experience with the insulation of lines in towns along the sea coast.

We are operating a magneto exchange located right on the sea coast and the lines are strung on knobs. The salt air is very hard on iron wire, even good galvanized wire will rust out in about four years. We are now using No. 14 copper-clad steel wire which we think will last. We have two lines of the same length, side by side. One is on knobs, the other is laying on the cross arm, as I have not had time to put on the knobs. A test for ground with a 90-volt battery shows the same leakage on each line, 10 volts each.

I am of the opinion that knobs are about as good as nothing for this climate, and would like to hear if any one else has had any experience under the same circumstances.

Another thing is that when the knobs are put on with common screws, they will rust and fill up the hole in the knob and burst it in about two years. We are using heavy galvanized screws now, which, of course, are better.

I hope some one has had something to do with lines under these conditions and will tell us about it.

Newport, Ore. W. G. Cumming.

### Letters from a Retired Lineman to His Nephew.

Podunk Valley Farm.

Dear Ben:

I am rather late in answering your last letter but there is a reason. It has been my opinion for sometime that you would get out of the telephone business one of these days and perhaps take up farming. I'm going to take a chance and give you a little advice right now. Whatever you do, no matter what inducements are held out to you, don't plant cucumbers to a greater extent than for family use.

Julia couldn't quite agree to my giving up farming entirely, so we made a contract with the pickle factory to supply cucumubers from a couple of acres of the farm we had reserved. But never again! We cleared a little money, an unusual income per acre.

Until picking time came, it was not a serious task, but the harvesting of that crop gave us enough trouble to counterbalance every possible remuneration quality. For three weeks we picked "cukes," picked them by the bushel, barrel and wagonload; slathers of them, and still the ground is covered with great yellow fellows, which got beyond the pickle size. Even the hogs are sick and tired of them.

For three weeks it was a 24-hour job, without time to eat.

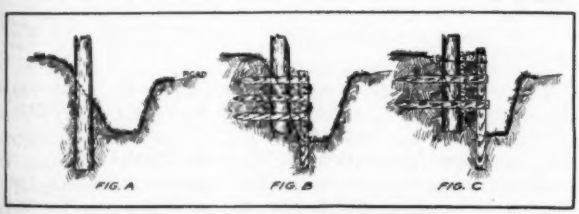



Fig. 1. Pole Set in Sloping Bank.

We hired all the help we could get, but if we'd have had a hand for every row, we could not have kept up with the game. The blamed things grow to pickle size while you wait; you don't have time to empty your basket. In clear weather it was bad enough, but it rained every few days, and then you could hear the vines grow with growing pains. Yes sir! I could hear them grow.

I remember the old songs we used to sing where each singer took up the strain as the one preceding finished the first line—"rounds" they were called. Well, that's the way we worked the cucumber game. I would start on a row and where I finished, someone else would start on the same row and so on. In that way we got over the patch twice in 24 hours.

At night we used a dozen lanterns and no one had time

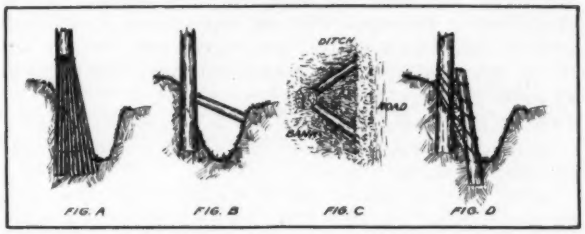



Fig. 2. Other Plans for Holding Poles in Place.

to get them ready. We burned, baked, blistered, suffered aches, pains, cramps, hunger, thirst, and fatigue. The only recompense I now recall is the pleasure of sleeping 14 hours a night for a week after the last blossom had developed into a cucumber. Even this relief was disturbed during the first two nights by dreams that "cukes" were hatching all around and pushing me out of bed.

"Don't ever do it, Samuel, don't do it," as Mr. Weller advised his son on one occasion.

So you're up against another proposition. Looks like something new is always coming your way. "How would you set poles in a sloping bank when the wash is bad?" you ask. Well, Ben, it's been done ever since lines were first built.

At the beginning of my experience we always had plenty of long poles and went down below the bottom of the gully the proper depth like this (Fig. 1-*A*). This made the bottom of the ditch the ground line.

Then later our long poles were not furnished promiscuously, so we had to devise other ways. Sometimes we lengthened or shortened the spans to get better holding soil. In places where we couldn't do that, we set cribbing like this (Fig. 1-*B*) at the start, and filled the crib with rocks. This scheme wasn't good because the front boards, being nailed on the outside of the posts, pulled off easily and let the rocks out into the ditch, causing a sidewash into and under the roadbed. The side pieces would also be forced loose.

One thing must be avoided, and that is the possibility of obstructing the flow of the water.

The next modification was to nail the cribbing inside the posts which answered very well when lumber, suitable for the purpose, could be had for nothing from the "cull" pile at any sawmill. But local sawmills have pretty well gone out of business since then, I believe.

Another scheme was to use logs in place of planks like this (Fig. 1-*C*), lashing the posts to the pole with wire. Sometimes stone was not available and we would saw logs into short blocks and use stumps and brush for filling.

The most ingenious scheme Barker tried out, was where we couldn't get hold of anything for posts. He cut a lot of tamarack stakes about the size of bean poles and set them like this, (Fig. 2-*A*) and lashed the tops to the pole with iron wire. The props formed a supporting barricade around the pole about a foot thick. The stakes, being set at an angle, resembled an Indian wigwam frame or a shock of corn.

In other places he resorted to the brace plan, bridging from the pole across the ditch to the roadbed, like this (Fig. 2-*B*) making a very small notch in the pole to hold the brace and

using 60d nails to hold it from slipping sideways. I have seen two braces used (Fig. 2-*C*), placed at angles forward and back on the line.

On the last job I had anything to do with, we set four posts around the pole and made a fence or crib by wrapping No. 4 iron wire around them, to hold the filling, which was part stone and part stumps. This made it necessary to dig away the bank back of the pole somewhat, a bit of bad practice.

The main bank should be disturbed as little as possible, as the dirt cannot be replaced to stand a wash.

If there is room to set the posts like this (Fig. 2-*D*), without obstructing the ditch too much, the wire cribbing can be placed around the pole. With the supporting posts standing vertically, the strain will, in some cases, pull the pole out of line and leave an opening behind it for the water to get in its work.

Of all these plans, the stake idea looks the best to me.

Buddy got another black eye today and Julia insists it was the fault of the other boys.

Buddy, however, tells me that he is going "to get" that Ryan kid if it takes all summer. I like his grit, although I'd rather he wouldn't fight. They are probably both to blame.

Your Uncle Dick.

### Special Construction Methods.

In TELEPHONY of October 25 are shown under the title, "Special Construction Methods," details for making a porcelain knob attachment for use in avoiding trees. The accompanying photograph shows a method which is being used to replace the tie described, due to fact that it will slip on the messenger. The improved tie is made by twisting both wires five times after passing through the knob, then making an over and under wrap on the messenger to four wraps, after which the ends are sewed to cause the wraps on messenger to clinch. This tie will absolutely not slip.

An Improved Tie for Drop Wires Among Trees.

Kankakee, Ill. Wm. Geckler, Jr.,

### The Telephone Postal Card.

I notice in the papers, that the matter of a "Telephone Postal Card" was brought up recently at a convention of supervisory postoffice employes at Toledo, Ohio.

I wish to draw attention to the fact that I presented this matter to Albert S. Burleson, postmaster general, Washington, D. C., in a letter dated April 28, 1913, and received a reply from him thanking me for this suggestion.

The following is taken from that letter and may be of interest to TELEPHONY's readers.

"I wish to suggest the introduction of what might be known as a "Telephone Postal Card." The intention is that this card would bear a special stamp, say five cents, and it would be sent to destination in preference to all other mail matter. It would show not only the address, but also the telephone number of the one to whom it was sent. Upon its arrival at destination, a clerk would immediately call up the telephone number, ask for party the card is addressed to and read the message. If the party is not in, word would be left same as in a long distance message, e. g., 'Have Mrs. Doe call post office for message to her.'

"A reply postal card would be ten cents. The number of words could be limited and no liability assumed other than is now assumed on a special delivery letter."

Waco, Texas. P. Kerr Higgins.

### Long Conversations on Party Lines.

One of the objections, from a subscriber's viewpoint, to party telephone lines is that usually some one person uses the line for long, unimportant conversations while others on the same line desire to use it for urgent business but are deprived of its use by the talkative person. As a remedy, many companies have adopted time limits of from three to five minutes for conversations.

One of the methods used for calling attention of subscribers to such a rule is that used by the Mineral Point Telephone Co., Mineral Point, Wis., of which W. S. Pedley is manager. Whenever complaint is made of a subscriber using a party line for long conversations, the following letter is sent out, signed by the manager:

To Local and Rural Subscribers:

Satisfactory results can not be secured by users of party lines, unless conversations are limited to a reasonable period—say five minutes.

From time to time we receive complaints from subscribers that the others on their line carry on lengthy conversation, sometimes as long as three-quarters of an hour.

If all the parties on the line desired to use the telephone, and each one of those who secured the use of the lines talked three-quarters of an hour, only about three people could talk during the forenoon, assuming that they began at nine o'clock.

We therefore, request that you limit your conversations to five minutes.

It is also suggested that should you answer the telephone and find someone else using it that you hang up the receiver and wait until they have finished. By avoiding interruptions, the party using the telephone will be enabled to complete his conversation rapidly, thereby aiding you in securing the line more promptly.

It should be understood that this notice is not as a personal criticism, but is a general letter we are writing to all subscribers having the same class of service with which you are supplied, whenever our attention is attracted to lengthy conversations.

Will you co-operate with us in the interest of good service?

Yours truly,
Mineral Point Telephone Company,
(Signed) W. S. Pedley, Manager.

### New Association in Western Oklahoma.

The managers of numerous Independent telephone companies in western Oklahoma met recently in Mangum, Okla., and formed an organization to promote their interests. It is stated that practically every town in the western part of the state was represented. The officers of the new association are: D. F. Vincent, of Foss, president; D. H. Wright, of Mangum, vice-president; J. W. Hendrix, of Hollis, secretary, and J. C. Hughes, of Martha, treasurer. The next meeting will be held at Foss, Okla., on the first Tuesday in January. Much interest in the new association was manifested at the initial meeting.

## TRAFFIC DISTRIBUTION IN EXCHANGES.

(*Continued from page 27.*)

switches *C*, *D*, are, moreover, instruments of the utmost simplicity, as the armatures make only one to-and-fro movement for every call. This simplicity is in striking contrast with any system involving a single distributor for every subscriber. In a device of this kind, giving a subscriber access to, say, 60 operators, the armature of the driving magnet has to make a maximum of 60 or an average of 30 steps for every call. This means not only greater wear and tear, and considerable maintenance cost, but also increased liability to breakdown. On the other hand certain kinds of trouble in a rotating switch may affect the whole group of subscribers, say 100, connected to the switch, although this eventuality is easily met by the provision of spare switches by which the damaged apparatus can be replaced in a few seconds.

There are two further points which illustrate the superiority of the continuously rotating switch over the step-by-step device of individual distributing apparatus. In the latter the source of motion is of course electromagnetic, because the subscriber's calling relay is all that is available for the operation of the driving magnet. In the continuously rotating switch the source of movement for the wiper is purely mechanical, and in the completion of a call the making and breaking of four electrical contacts are the only actions involved, as compared with an average of 30½ or a maximum of 61 contacts in an individual system with 60 operators. The second point is this: The contact surfaces of the wipers in the rotating switch system are constantly rubbing against the contact rings, and are therefore self cleaning. The contacts, on the condition of which the working of any system of this kind essentially depends, are therefore always in good condition, whereas in the individual system, the distributor contacts of a subscriber who makes little use of his telephone, may be covered with dirt and dust, and so interfere with successful operation unless constant and careful attention is given to every contact. As there are about 600,000 wiper contacts in an exchange of 10,000 subscribers and 60 operators, this means a heavy maintenance charge, and is in addition a source of uncertainty and inefficiency of the whole service.

Referring to the diagram and to the foregoing remarks, it will be seen that the application of a selector switch distributor system to an existing common battery installation offers no serious difficulties. The existing individual line relays are removed and replaced by one calling relay for every 100 subscribers. The same type of relay may be used for the new equipment. The terminals of the subscriber's lines are connected to the switches *C*. The answering jacks and calling lamps are removed, and the space previously occupied is utilized for the increased number of lamps in such a manner that the new lamp strips are inserted between the jack strips. The lamps are connected to switch *D*. All the listening keys are provided with additional contacts connected with a relay common to all the keys of a position.

The only difficulty is the installation of the additional lamps. A new pattern of signaling lamp has, however, been recently brought out, requiring considerably less space than the usual lamps, and enabling the required number to be easily placed in the space at disposal. It will thus be seen that the installation of automatic traffic distributing plant in a manual telephone exchange of the ordinary common battery pattern requires very few alterations to the existing equipment. The change may easily be effected gradually so that no interruption is caused to the service.

In considering the cost of the system, it is, of course, necessary to take into account the additional apparatus required. The individual line relays are, however, eliminated, and replaced by one for every 100 subscribers, so that in a 10,000-line exchange, 9,900 line relays, with accessories, cables, wiring and racks, are saved. The most important item is, however, the saving in the multiple. At Stockholm and Rotterdam, where manual traffic distribution by "A" operators is in operation, a saving of nearly 50 per cent. of the multiple has been accomplished, and as automatic distribution is considerably more efficacious, at least the same saving should be expected.

The calling lamps mentioned above take only 0.02 watt, or 1/300 of the energy required by the ordinary type used in common battery exchanges. Hence there is a considerable diminution in the total operating current, and a possible reduction in the lamp cables to about one-tenth of their former weight. This diminution of apparatus and accessories is also accompanied by a corresponding saving in floor space, especially in connection with the reduced multiple. Against these savings, the equipment is increased by the rotating switches and the additional lamps. The space occupied on a wall by the former does not exceed a few square yards, and the latter require no additional room at all. There is therefore very little to offset against the saving mentioned.

Consequently the conclusion is reached, that an existing exchange, having reached the limits of its capacity and requiring immediate extension, may be maintained in service for a further period by the introduction of automatic traffic distribution. From the point of view of cost, the elimination of the individual line relays alone may cover the cost of the rotating switches and additional lamps, and the saving in multiples, cables, current consumption and floorspace all remain as pure gain. The saving in operators' wages is roughly illustrated as follows: In an ordinary 10,000-line exchange, in which the whole traffic is handled by "A" operators, a staff of 130 operators is required. In an exchange of the same size with manual traffic distribution, the required number is 109, 36 of these being "A" operators. As, in the system described, the work of these operators is done automatically, an exchange of this kind requires only 109—36=73 operators, that is, at least 57 less than in an ordinary exchange.

To sum up, the advantages realized by the above described selector switch system for the distribution of traffic in a manual common battery telephone exchange are as follows, under various headings:

Exchange Equipment.—1. Considerable economy resulting from (*a*) elimination of individual line relays; (*b*) reduction in the number of multiple sections by 40 to 50 per cent.; (*c*) reduction in the necessary floor space to such an extent that an otherwise imminent extension may be postponed indefinitely, permitting the use of existing plant for the remainder of its useful life; (*d*) low energy consumption for signaling; (*e*) considerable saving in the exchange wiring, on account of the reduction in multiples and smaller signaling currents. 2. Simplicity and reliability of the additional apparatus. 3. Very little alteration to existing circuits, the most important item being the fitting of extra contacts to the listening keys.

Quality of Service.—Great improvement, as compared with the ordinary common battery system, for (*a*) rapidity, the waiting period for every subscriber being reduced to a few seconds; (*b*) equality, the deficiencies of any one operator not being confined to one particular group of subscribers; (*c*) impartiality, the same subscriber not being attended to always by the same operator, but probably by a different operator after each call.

Operating.—1. Uniformity of traffic pressure, the whole of the incoming calls being at every moment equally distributed over the whole operating staff on duty. 2. Reduction of the operating staff by 50 per cent., compared with the ordinary system, as far as local traffic is concerned. 3. Changes in the number of operators on duty are effected by steps of one operator. 4. Concentration of the staff, during periods of light load, to one, two or three adjacent multiple sections. 5. Equal strain at any time on each operator. 6. Highest efficiency of operator's work. 7. Most effective and impartial supervision,

each operator's work being graphically and automatically recorded. 8. Facility of comparison and selection of operators. 9. Team work is always automatically enforced, and does not depend upon personal supervision.

MAINTENANCE.—Appreciable reduction in maintenance work and costs, owing to elimination of line relays and reduction of the multiple. The cost of driving the selector switches is largely counterbalanced by the saving already mentioned and the low cost of signaling current.

### Earnings of Company in Beaver County, Pa.

The annual report of the Beaver County Telephone Co., of Beaver, Pa., shows very satisfactory earnings and a remarkable growth in the business during the past year. The earnings from all sources amounted to $51,301; disbursements, $31,757; dividends paid, $16,132; leaving an amount of $3,411 carried to surplus account, which together with the surplus of $15,358 at the close of business October 1, 1912, gives a surplus of $18,770 at the close of business on October 1, 1913. The assets of the company on October 1, 1913, were $561,499, and liabilities, capital stock, bonded indebtedness and accounts payable $542,729.

The company claims its success has been made possible by the superior telephone service, and the policy of the company in giving its patrons the benefit of low rates and fair deal under all circumstances.

# Collection of Telephone Accounts and Best Methods

## Persistency, Courtesy and Firmness are Necessary to Insure Payment of the Thousands of Small Monthly Bills Owing a Big Telephone Company—Methods Used by Federal Telephone & Telegraph Co. Described in Company's Bulletin

By Raymond Bissell

The business of the collection department of a public service corporation, such as a telephone company, is based on the completed contract in which the subscriber agrees to pay for his telephone service in advance, and the telephone company promises to furnish service which has already been paid for. The telephone company is dealing in a non-recoverable commodity, and on these grounds, if on no others, it is entitled to pay in advance.

The first and foremost duty of the collection department of a telephone company is to educate its subscribers to the fact that payments must be made according to the terms of the contract. This education means a perfect understanding between the subscriber and the company, and this understanding can only be brought about through the efforts of the manager himself. The managers, therefore, should use their very best efforts, not only to collect the money which is due the company, but also to bring their subscribers to see, from the viewpoint of the telephone company, the obligation on their part to keep up their payments as originally agreed.

### Collections Depend Upon Managers.

Many managers feel that the conditions which confront them in their particular exchange are different from the conditions that are found in other exchanges where the collections are never an irksome duty, but where subscribers pay their accounts regularly according to the contract. The experience of our company has been that the exchanges fall behind in their standing on collections, not because the subscribers haven't the money with which to pay, but because the managers have not given the time and attention to collections which they should have given, and have not been persistent and diligent enough in keeping after their subscribers.

While our company feels that the matter of first importance in collections is the matter of education, still even before that comes the personality and effort of the manager. There are certain exchanges of our company that have stood at the bottom of the list and the managers have said that they could not collect the money outstanding, because the people were not able to pay. We have found, however, that by changing managers from one exchange to another, the new manager is frequently able to collect, not only the accounts in arrears, but in numerous cases has brought the exchange standing nearly to the head of the list. This indicates very clearly that the question of collections begins and ends with the efforts the manager, himself, puts forth; that the financial condition of the community in which the exchange is located has little or nothing to do with it.

In all our exchanges, the most serious problem with which we have to contend in making our collections, is the obtaining of money from our rural subscribers. Of the various sources of income probably the least productive of net revenue is the rural telephone. The farther a telephone is located from the central office, the more expensive it is to maintain, and the investment is greater for the company in pole line construction and wire.

### Reducing Collection Expenses in Rural Districts.

In making repairs to these telephone lines, the company is called upon to furnish livery, and in many instances in previous years, it has been necessary for us to send collectors for the money for rentals and tolls as they fell due. The expenses for repairing lines and instruments can only be reduced by making installations and running lines so that the opportunity for trouble is reduced to a minimum, and in making the repairs in such permanent shape so that there is no danger of recurring trouble.

The expenses of collections in the rural districts can be reduced by educating the subscribers to the fact that all accounts must not only be paid promptly but by educating them also to the fact that our company should not be called upon to spend money for livery and labor in calling on delinquents. This education should commence when the prospective subscriber signs his contract. Managers should not wait until after the instrument is placed to start this education, but should explain fully about the terms for payment before the instrument is set.

Subscribers should be told that the terms for payment are three months, or one month, according to existing conditions, in advance, and an effort should be made at the time of the signing of the contract to secure an advance payment. Further explanation should be made as to when bills will be rendered. A distinct understanding should be reached as to how soon they should be paid after the subscriber receives them. If all subscribers were made to understand the terms and would take care of their accounts as they contract to do, then collections would never be a subject for discussion.

We appreciate, however, that no matter how earnestly we try to educate our people to pay promptly, there are always some who are falling behind. This puts us face to face with a problem of securing the money due us from habitual delinquents at the least possible expense. Let us consider, for the time being, the problem that presents itself with the rural subscribers, and the means we have to collect from them:

NOTICES TO RURAL SUBSCRIBERS.

Our company, some time ago, issued notices to be mailed with all bills going to rural subscribers, reading as follows:

Hereafter subscribers will please mail to our local office either personal check, or money order, or money enclosed in the coin carrier, in payment of this telephone account.

We will allow them to deduct the cost of the money order from the face of the bill. Money orders to be purchased from the rural free delivery mail carriers.

If it is less than $1, coin carrier is to be used as the amount is too small for the company to stand the cost of money order.

This gives the subscriber an easy and inexpensive way of paying his bill, and also deprives him of the excuse which is so often given that "I cannot pay until I come to town," or "I will pay when I am in town again."

If the subscriber adopts the means outlined, there is absolutely no expense to him in following this plan, and it is a convenient way for him to pay. From the company's standpoint, with the rural free delivery mail carrier going to each house each day, it is the same as a collector going there.

We fully appreciate that managers cannot educate their subscribers at once to this plan of paying; that they can only do so by forwarding the coin carriers and notices to them with every bill, and by constantly urging them to pay in this way whenever opportunity presents. Those subscribers who are delinquent after having received notice as outlined, should first be called on the telephone and urged to pay. Managers in calling subscribers should endeavor to secure some definite promise of payment and then, if payment is not made on the day agreed upon, the subscribers should be called again the next day without fail so they will know that the company is in earnest in their desire to secure the remittance.

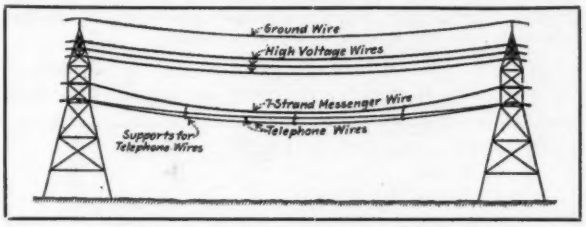
If the manager is put off with promises from time to time, promises that are not kept, the next course to adopt is to have the troubleman, in case he is going over this particular subscriber's line within the next day or two, take the bills along and endeavor to secure payment. At that time, it would be well for the troubleman to give the subscriber a verbal notice that unless the account is taken care of, he will doubtless receive a written notice from the office that his service will be discontinued within a short period.

If payment is not made then, a notice should be promptly sent from the manager stating that unless the account is paid service will be discontinued. If the subscriber does not take care of the account on the day mentioned in the manager's letter, he should be denied service immediately, and only reinstated after he has paid.

The foregoing is a brief outline of what our company considers the best and most economical way of handling rural accounts, and the only way we can secure successful and lasting results is by keeping persistently and continually after these delinquent subscribers. Do something each day and soon the list of delinquents will be small, and collections will become a pleasure instead of a constant source of worry and trouble.

### Telephone Lines on Transmission Towers.

A power transmission company in northern New York state, says a writer in the Electrical World, has adopted a type of construction for the telephone circuit used in connection with its high tension lines, which does away with the difficulties usually encountered in long span tele-




Support of Long Span Telephone Lines Between Towers.

phone construction. As the towers were spaced about 350 ft. apart, the tensile strength of the light copper telephone wire prohibited the dispatch line from being placed on the main towers without some intermediate support. Accordingly a light seven-strand messenger wire was strung below the high-potential wires, and upon this supporting steel cable are hung iron brackets, such as are sometimes used on long distance telephone lines for making phantom transpositions.

Three of these supporting brackets in each tower span divided the weight of the telephone spans into four parts, so that it is readily supported and the danger of trouble on the telephone line due to accidental short circuits, caused by the wires, swinging together, is reduced to a minimum. The high tension lines and the telephone wires are placed in separate vertical planes in order to lessen the danger of a contact between them should one of the power wires fall.

### Growing Independent System in Southeastern Missouri.

P. D. Smith, owner and general manager of the Current River Telephone Co., of Fremont, Mo., which is operated in Carter, Shannon and Howell counties, recently purchased the Summersville telephone system, which has an exchange at Summersville, with lines to Houston, Salem, Ink, Pine Grove, Cedar Grove, Alley, Mountain View and several other points.

The lines will be put in first class condition as soon as possible and operated in connection with the Current River Telephone Co.'s system, which is the result of a merger of companies effected by Mr. Smith a year ago. The latest acquisition will enable subscribers to reach towns in Carter, Shannon, Howell, Texas and Dent counties, in addition to long distance connections, making the company one of the best Independent systems in southeastern Missouri.

### Cleveland Telephone Service Now Restored.

Subscribers of the Cleveland Telephone Co. and the Cuyahoga Telephone Co., Cleveland, Ohio, will not have to pay for the time their telephones were out of order following the damage done by the recent storm. It is estimated 25,000 subscribers are affected. T. P. Cagwin, manager of the Cleveland Telephone Co. and C. Y. McVey, vice-president of the Cuyahoga Telephone Co., say nearly all the telephones are now in order.

### Insurance Benefits to Central Union Employes.

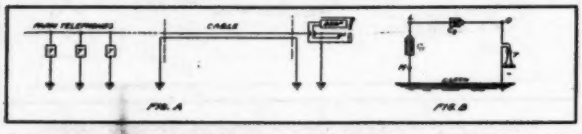
According to the report issued from the general office of the Central Union Telephone Co., at Indianapolis, the Indiana employes of the company were paid $7,534 in sick, accident and death benefits for the first ten months of 1913.

# Queries on Theory and Practice

### Grounded Farm Lines in Cable.

We have an underground cable, a little over 6,000 ft. in length, and would ask which is the best practice: to work grounded farm lines metallic through cable, or only use one side of a pair and ground at the main frame?

Less cross talk will be experienced if you use one wire of the pair for a farm line and ground the mate at both ends,



Farm Line Through Cable—Capacity Relations Between Wires.

as shown in Fig. A. The capacity between the two wires weakens the electrostatic influence of the line and so reduces the cross talk. The capacity relations are shown in Fig. *B*. Let *L* represent the rural line in question, *M* its mate, *O* some other telephone wire in the same cable, with its telephone *T* connected to earth. The capacity between the lines *L* and *O* is represented by a small condenser, $C_3$, because the capacity is greater; *M* is grounded.

When persons on line *L* are talking, there is a tendency for current to pass from the line *L* through condenser $C_3$ to line *O* and to earth through telephone *T*. But the grounding of *M* gives an easier path from *L* through $C_1$ to earth, so that less current will pass over to other lines.

This method will reduce cross talk to some extent, but can never cure it. In 6,000 ft. of cable, you will have loud cross talk even with this device. The only way to cure it, is to make the line metallic through the cable. From the distant end of the cable, either make the entire farm line metallic, or couple the cable pair onto the grounded farm line with a repeating coil.

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### Telephone Companies, Power Lines—Rural Contracts.*

The light and power company at ———— has built in parallel to us, and its voltage, being 33,000, has about ruined our toll business, although we have metallic lines. Please advise whether or not we have any redress against the power company.

A new power company has started in business in ———— and it is setting its poles through our lead. Our franchise is not exclusive, but we feel we will have the protection of the court if the power company damages us in any manner, whether by induction or by contact.

We are switching farm lines and own the lines to the town corporation limits. We have some people on those lines who refuse to pay us, claiming that they are only calling their neighbors. We have no contracts with the line nor the individuals. What can we do? Can we cut the line off at the city limits, or can we force the people who own the line to make these people come across?

Wish you would get up the very best contract for rural switching service, the farmers to furnish all the instruments and do all the work outside of the town limits. We are getting $5 per year and giving one town.

As to interference with power companies, the general rule is that, prior authority to one of the companies to occupy, or prior occupancy of, the streets, will not confer upon such company an exclusive right. The right of the prior licensee, however, must not be subsequently invaded by the later company. Such subsequent builder is under the duty to so construct and maintain its lines as not to interfere with the right of the prior occupant of the streets to properly maintain and operate its lines, and to transact the business it is authorized by its franchise to transact. Joyce on "Electric Law," Section 517, Nebraska Telephone Co. vs. York Gas & Electric Light Co., 27 Neb. 284; 3 American Electrical Cases, 364; Rocky Mountain Bell Telephone Co. vs. Salt Lake City Ry. Co.; 3 American Electrical Cases, 356; McMillan on "Telephone Law," Section 139.

The matter has also been discussed as between two telephone companies, in the case, Northwestern Telephone Exchange Co. vs. Twin City Telephone Co. 89 Minn. 495. If your company is upon the highway and the light and power company has so built its lines as to render the company's lines useless, the telephone company can force the power company to either remove its lines, or to pay the costs of so changing the telephone company's lines or the power line, as to remove the damages done. The court would probably require that change to be made which could be done at the least expense, that is, if by moving the telephone lines, the damage could be done away with at less expense than by changing the power lines, the court would order the telephone lines to be changed, and assess the costs of such change against the light company.

The law in the various states is not uniform, but in every case the prior occupant of the street has been protected against injuries from a subsequent plant. The telephone company should be advised to place the entire matter in the hands of an able attorney, and he undoubtedly can clear the matter up in short order.

This also applies to the case of the power company which has started business in ————. It must so build its lines as not to interfere with the telephone company, or it will be liable in damages.

Relative to switching for farmer lines, you are advised that where no contract exists between the telephone company and the rural company, the telephone company can, upon 30 days' notice, cut the rural line off at the city limits if the subscribers refuse to sign a reasonable contract for connections. We are of the opinion that it is entirely reasonable for a telephone company to demand and collect connection fees for all telephones on a rural line, for the reason that every ring upon a line, whether the farmers are talking among themselves or not, throws the drop upon the central board, taking the time of the operator in restoring the drop, or ascertaining if the calling party wishes central or not; and also, for the further reason, that it is absolutely impossible for any party to be connected with this kind of a line and keep the parties on it from using the central exchange facilities.

It is reported that a new utility law has just been passed in your state. If this is true, and the law is effective within a short time, we would advise this company that it wait until the law takes effect. Then, upon 30 days' notice, cut off the line and require the farmers, in the event that they then refuse to sign a reasonable contract, to apply to the commission for relief. The company could then answer the complaint before the commission, setting up that it is willing to give connections upon a reasonable contract. We are certain that the commission would uphold it in its contention, and bring the rural line to time.

In reply to the inquiry as to forms of rural line telephone contracts, two forms are submitted which are in use by one company and under which it has never had any serious difficulty.

Paragraph 4 of the contract provides for exclusive connections, and in some states under a physical connection law

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*Inquiry received by Service Department of Independent Telephone Association of America from a member company and the reply as furnished by a legal friend of the Service Department.

they would be inoperative. It would be best to leave the clause in the contract anyway, as in 90 cases out of a hundred rural lines would not question it. The telephone company would then have the benefit of exclusive connections, and in the case where the rural telephone company did question that feature, the commission would simply hold that particular paragraph to be inoperative, and uphold the balance of the contract.

The minimum charge which one company makes for service of this kind is $3 per year. Any stations over and above the ten on that contract, may be installed at a sliding scale down as low as 15 cents per month.

Some connecting companies have rural exchange contracts where they have a switching rate only, at five cents per message. This would cover every call that the operators have to handle. Some rural lines are equipped with a generator shunt, so that in ringing the local patrons on a line they do not throw the drop at the central office.

Any operating companies desiring form contracts covering service rendered rural companies may secure them by writing to the service department of the Independent Telephone Association of America. The department has copies of contracts used by several of the prominent companies, and would be glad to hear from any Independent company interested in this matter.

### High Tension and Grounded Telephone Lines.

What effect will a 6,600-volt transmission line have on our two grounded lines running on the same side of the road at times and on the other side most of the way? It will run parallel for over a mile. We use 20-foot poles and the power company is going to use 25-foot poles. For three miles north of town, they will have one side of the road and we the other side, but in turning east they take the same side of the road as we now have, for a distance of a mile. Will it cause us any trouble if they stay on the other side of the road? In town we have over 76 local lines, all grounded, but the high tension lines do not come any closer to our lines than across the street. I would like to know just what effect it will have on our lines.

That one mile of exposure, where you are on the same side of the road, will render your lines unusable. You will have to get on the other side of the road. Then you will parallel the 6,600-volt transmission line for four miles, though on the opposite side of the road. You will still get strong induction and it is doubtful if you can avoid changing your lines to metallic.

### A Problem in Grounded Circuits.

Is the circuit shown in the accompanying drawing (Fig. 1), practical, and could a low resistance electromagnet be used without disturbing the talking circuit? It is desired to have electromagnets, $R$, $R_1$, $R_2$ and $R_3$, energized when the talking circuit of two telephones is open. The electromagnets are in series with the batteries $X$, $X_1$, $X_2$ and $X_3$, but are connected

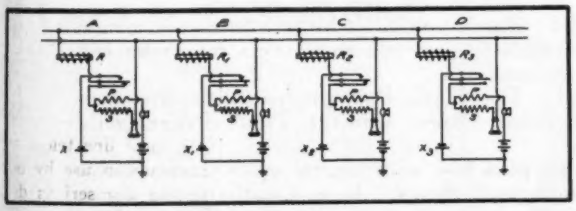


Fig. 1. The Talking Circuit of Problem.

to terminals of opposite polarity so that when the circuit of two telephones is open for talking, the electromagnets with their opposite polarities will make a good return for the primary circuits.

It is also desired that when a person is talking, the battery will be disconnected so that it will not cause trouble. In the drawing (Fig. 1), station $A$ is talking to station $C$, and the electromagnets, $R$ and $R_2$, are in series with the primary circuits, the batteries $X$ and $X_2$ having been disconnected. The stations $B$ and $D$ have electromagnets, $R_1$ and $R_3$, connected in series with the batteries $X_1$ and $X_3$, with opposite polarity of the batteries in the primary circuit of stations $A$ and $C$.

In general, there are two ways of securing the results which

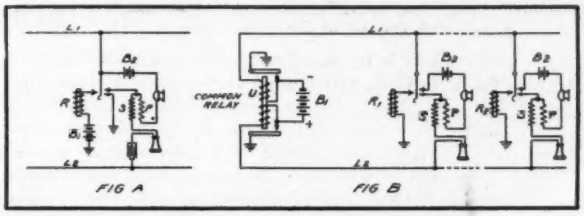


Fig. 2. Suggested Circuits for Securing Desired Result.

you desire. First, with separate local batteries located in the different telephones. Second, with the same number of cells, but grouped in one common battery at one point. Each requires the use of a hookswitch having one lower contact and two upper contacts, besides the main spring.

The circuit shown in Fig. 2-$A$ operates as follows: When the hook of any telephone is down, the relay, $R$, is connected to $L$. If now, one of the several telephones is used and the hook therefore rises, its own relay $R$ will be disconnected and $L$ will be ground. This will pull up all the relays $R$ of the unused telephones. The condenser must be in series with each receiver to prevent loss of current from battery $B_2$.

The plan shown in Fig. 2-$B$ operates as follows: Normally, with all hooks down, relays $R_1$ and $R_2$, etc., at the several telephones are connected from earth to $L_1$. Common battery $B_1$ is insulated from ground. When any hook rises, its relay is cut off and the telephone connected across the line $L_1$ to $L_2$. This allows current to flow from battery $B_1$, through the common relay and the telephone (receiver and secondary winding $S$). The common relay will pull up and ground the minus (—) terminal of the battery, putting the relays of the idle telephones in parallel with the winding $U$ of the common relay. Thus the telephone relays are pulled up.

The system of Fig. 2-$A$ has the disadvantage of having a dead ground on the line while talking. If the line is exposed to induction, it will make it noisy. This can be obviated by running a third wire and using it in place of earth. The circuit of Fig. 2-$B$ will be somewhat unbalanced during conversation, but for interior work, it should be satisfactory.

### Fire in U. S. Government Building Detected by Telephone.

How a senator's telephone prevented a serious fire in the U. S. Senate office building is the story going the rounds. And it is true, too, only names are not mentioned.

It seems that a certain senator one night recently, just as he was about to leave the building, thoughtlessly threw a lighted match, after lighting his cigar, into the waste basket. That's all the senator has to do with the story.

The next scene is at the telephone switchboard in the Capitol, where a light flashed, the signal of a calling party. The operator answered, but received no response to her "Number, please?" The light continued to glow and finally the operator after waiting some time, called the watchman, and told him to go to the senator's room in which the telephone giving the signal, was located. The senator, she thought, had left the receiver off the hook.

The watchman proceeded to the room and found smoke issuing from beneath the door. When he opened it, he found the room full of smoke, the senator's desk on fire, and things in a bad way, generally. After the fire was extinguished, it was found that the flames had burned the insulation of the telephone wires causing a short circuit, thus giving the signal at the switchboard.

# "The Man Who Seeks Usually Is a Receiver"

By ELBERT HUBBARD

We live in an age of investigation and interrogation, hence the success of the man who furnishes the truth and those who absorb it.

A man who wants to know the whyness of the wherefore, or the thusness of the this, is in the line of evolution—of advancement.

There are three ways to attain knowledge: "To ask, to be told, to find out for yourself." The first depends upon your assimilation, the next upon the skill with which the incision is made, and the last upon your perspicacity and perspicuity. And not one of these processes alone can give you knowledge. They must be used in combination. You must be a seeker, a learner, and a doer.

Our prehistoric ancestors, before the formation of language, used to make known their wants by signs. When they were happy, they danced the Tango—when they were mad, they raised Cain.

For countless ages this obtained, and it is even said that, previous to the Bostonian Era, the inhabitants of this country simply barked at each other—and we can even hear some yelpings yet! But with the growth of centuries, language of speech was evolved, and men began to hide their real feelings under a cloak of phrases and not a few to lie like some sophisticated lawyers. Then came the printing press, the phonograph, the movies, osteopathy, and the player-piano.

All these things are the outcome of the eternal query, "why?"—the result of imagination, interrogation, investigation and work. They are educators.

And the Trade Paper is probably the most alive to the urgency of education, and the gratification of the mental needs of its readers, than any other press production. It asks, absorbs, gives.

Take up a Trade Paper—note the logic of its discussions, the well-expressed opinions of its contributors, the quality and texture of the paper, the clearness of the type, the beauty of its arrangement. Then tell me if it isn't an education—beautiful, inspiring, strengthening.

Thousands of Trade Paper subscribers are receiving mental uplift and renewing their courage by its means.

The Trade Paper is the leader, the reflector of the Trade world. It applies chiropractic methods to managerial meningitis, the numerical neuritis of the cashier, or the comatose business man.

As a spinal adjuster the Trade Paper is a necessity. Without it there is great danger that the glooms will get you. It manipulates the dislocated vertebrae of declining business until the spinal irritation walks its chalks, trundles its hoop, and you climb into your buzz-wagon and let-er zip Gallagher!

The specialized Trade Paper keeps the red corpuscles turkey-trotting, and prevents psuedoanginalitis or imitation heart-disease.

It helps you push business, thereby preventing nervous prostration. For nervous prostration is never occasioned by you pushing your business—it only happens when your business pushes you.

The Trade Paper is the Pathe Weekly of the subscriber. It gives vivid character sketches of the passing great. It takes extensive tours over the fields of science, business and invention. It teaches by living, moving, word-pictures, the reasons for the failures and the causes of success.

The business of religion is now giving place to the religion of business; and the trade paper is the evangel of the true brotherhood of co-operation and self respect.

Show me the company a man keeps and I will tell you what he is. Show me a man who subscribes to and reads his Trade Paper faithfully, and you show me a man who will "show ME,"—a man alive, alert, ambitious, successful.

He has learned to ask, to seek, and to find. The Trade Paper is his guide, his encyclopedia, his friend. HE is the "Why" of the Trade Paper, and the Trade Paper could not exist otherwise.

The Trade Paper, specialized and classed, supplies him with mental unlift, increases his sum of knowledge, places him in touch with men and things. It is a cathartic, a tonic, and a developer. And the Trade Paper subscriber in turn provides the gist. Go to school to the men who know how.

The "Why" of the Trade Paper is "Co-Operation"—the greatest force in the world today. It exemplifies unity of purpose, of endeavor, of achievement. The getting together, holding together and pulling together—the elimination of imperfections and the materializing of ideas and ideals. Subscribe for and thoroughly read your Trade Paper!

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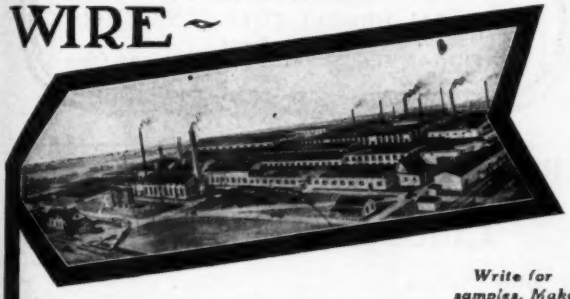
## This Seal

means a lot to the man who is after **quality** in Galvanized Telephone Wire. Look for it on every coil.

**John A. Roebling's Sons Co.**

**TRENTON, N. J.**

# TELEPHONE WIRE



*Write for samples. Make a test and comparison*

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Realizing that in the Manufacture of **Telephone Wire**, the use of only the best material obtainable and the engaging of skilled labor for the work itself, makes it possible to watch and thoroughly **Test** each Process from raw material to finished Product. Our plant is thoroughly equipped for this work and its completeness in every particular makes it possible to deliver to the trade

**Telephone Wire of Quality**

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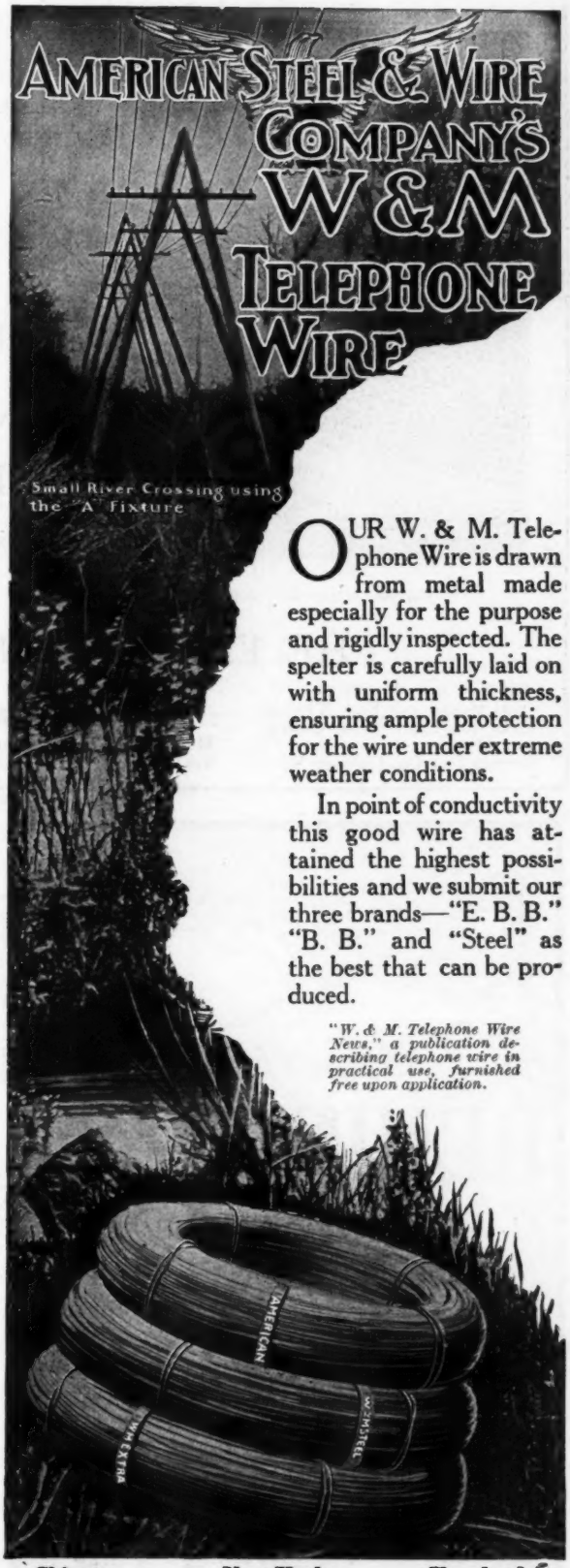


OUR W. & M. Telephone Wire is drawn from metal made especially for the purpose and rigidly inspected. The spelter is carefully laid on with uniform thickness, ensuring ample protection for the wire under extreme weather conditions.

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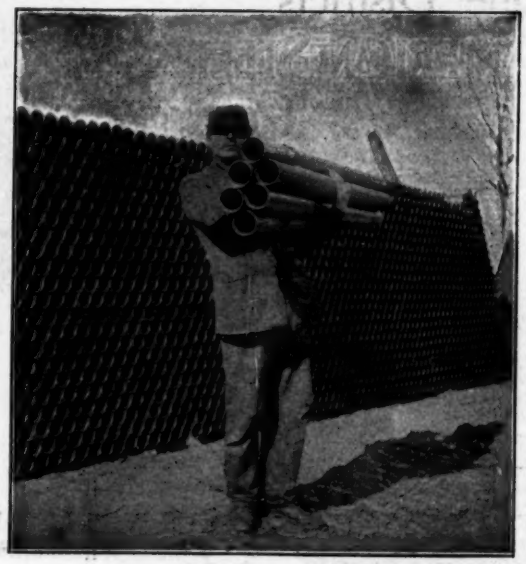

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Made in FOUR STYLES OF JOINTS

*Socket, Sleeve, Screw and Harrington*

WITH BENDS AND FITTINGS FOR SAME

**Is the lightest conduit made**

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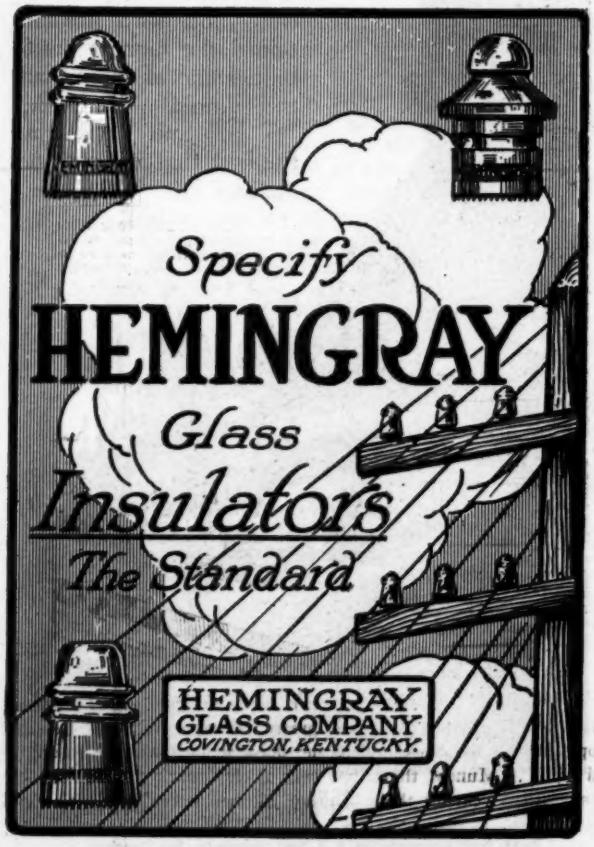


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**Blake Insulated Staples**

Unequalled for telephone and bell wiring. The fibre insulation prevents troublesome short circuits and grounds.

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**Blake Signal & Mfg. Co.**
BOSTON, MASS.

# In the Rural Line Districts

Bill Cook, the efficient manager of the Independent Telephone Co., has digressed somewhat from his position and has gone into the house-moving business. Bill had a shed about 12x16 that stood in the rear of his residence on Colfax street that he wished to move back to the alley and convert into a barn. He consulted several and it was their opinion that it was an impossibility on account of the apple trees in the back yard, but Bill was from Missouri and had to be shown, so he tackled the job himself. He borrowed a jack screw and the advice of Buck Rosenbalm and Ed Matthiesen and began operations. Believing that all good deeds are accomplished on a good day, he started the deal on Sunday last and by Friday had the critter in the position he wished and on the foundation. Many engineering difficulties were encountered as he had to maneuver the building so as to dodge six apple trees and a small cherry tree, but Bill says he did the deed and is proud of it, but don't think it would have ever been accomplished if it hadn't been for the "scab" labor giving advice while he did the work.—Blair (Neb.) Tribune.

The telephone system of the Wyoming Telephone Co. is at last entirely out of commission. How those people over there are going to get along without communication with the outside world is past our understanding. It is a great inconvenience to us over here, where we have communication by rail, telegraph and telephones in almost every other direction, not to be able to reach that section. Life is certainly too short for those people to long stay isolated from the rest of the world.—Welch (W. Va.) Record.

Last Saturday morning, as Manager McGrew of the telephone company was about to enter Fred Bullard's residence to repair a telephone, Bullard's dog grabbed him by the ankle, the animal's teeth penetrating the shoe and entering the flesh, making an ugly wound, which was cauterized by Dr. Winnard; Mr. McGrew coming immediately to town.—Warsaw (Ill.) Bulletin.

The telephone company are installing a new switchboard as the old one was not large enough to do the work. We thought something was wrong as it seems you can get no answer after about 5 p. m. If the new board helps that we are satisfied.—Greenwood Item, Waverly (Neb.) Watchman.

Ten telephone operators in the Forest Exchange, Lake avenue and Delmar boulevard, were thrown into panic at 1:45 o'clock this morning when two of their number, who had gone to the main floor rushed into the operating room and announced some men were endeavoring to break into the window. The girls ran from the switchboard room to a small office and huddled there in terror, while Miss Iren Shelby, chief operator, telephoned the Twelfth District police. A patrol wagon loaded with officers was sent to the exchange building, but no one could be found.—Correspondence, St. Louis (Mo.) Globe-Democrat.

The Home Telephone Co. has this week been readjusting some of their wires in order to better facilitate some of their patrons.—Bloomington Item, San Bernardino (Calif.) Sun.

MY HEAVENS WHAT NEXT WILL WE SEE ON OUR STREETS
OH! HORRORS!
JOE SIMPSON YOU COME ALONG HERE WITH ME YOU BALD HEADED OLD FOOL YOU
GROCERIES
Brandenburg.

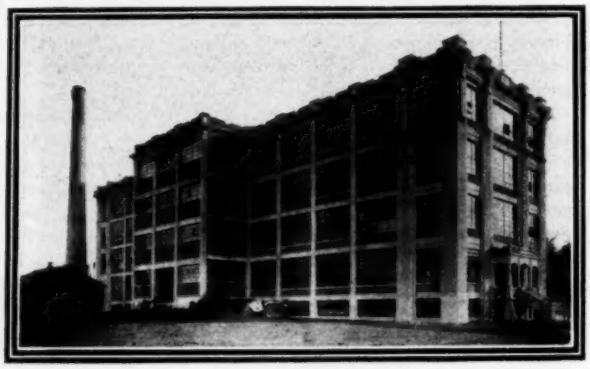
Some of our citizens were almost thrown into a panic a few days ago by the appearance of a mysterious young lady on Main street wearing a split skirt of the latest fashion. It was afterwards learned that the pretty stranger is Miss Georgie Muncie, of Chicago, who came to take Miss Hobart's place as operator in the Home telephone office while the latter is enjoying a month's vacation in Colorado Springs. Since the arrival of Miss Muncie, there has been a very marked change in the appearance of some of our leading young men. Some of them are now wearing their Sunday clothes every day.—Richfield (Mo.) Tribune.

# From Factory and Salesroom

**Conventions: National Independent Telephone Association, Chicago, January ,13 14, 15; Independent Telephone Association of America, Chicago, January 20, 21, 22**

### New Plant of Gray Telephone Pay Station Co.

A new modern plant for the manufacture, at the rate of a completed machine per minute, of the telephone pay station, which was invented by William Gray in 1886, has recently been finished at Hartford, Conn., after a year's work, for the Gray Telephone Pay Station Co. The factory building is five stories



New Plant of Gray Telephone Pay Station Co.

high, has an aggregate floor space of two acres and is designed to give the maximum amount of light, as may be noted from the accompanying illustrations. The plant consists of the main building, a power house and a garage with underground coal pockets and tunnels, and was built at a total cost of $157,000.

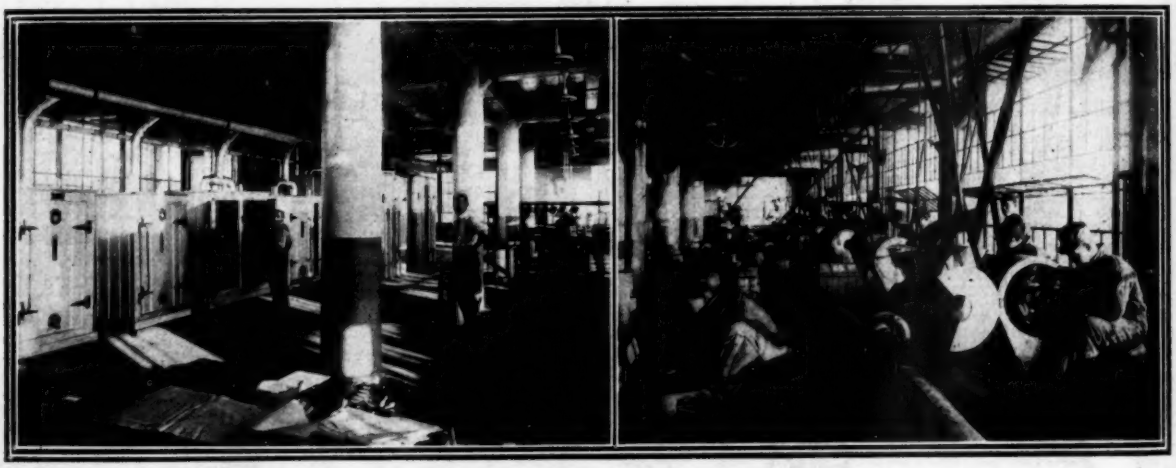
The main building is of full reinforced concrete with brick spandrels and parapet walls with steel window sash. The interior structure consists of columns, girders, beams and floor slabs, which are also of full reinforced concrete. All the concrete floors are covered with three-inch plank, imbedded in tar, and finally covered with a one-inch maple wearing surface. The main building is 210 ft. long and 52 ft. wide. The supporting columns are 24 ins. in diameter, placed on 16-ft. centers, providing for a live load of 5,000 lbs. to the sq. ft. The main building has 59,500 sq. ft. of floor space.

Located in the basement are the stamping and press rooms, together with storage space for all raw materials. Here, also, are the main electric switchboard and die castings department. The company buys, at present, outside current for both power and lighting and the cables supplying the current come into the main switchboard through underground conduits. The switchboard is equipped with the necessary switches and meters for supplying the building and for determining the amount of power or light taken by the building as a whole or each department separately.

The first floor is devoted to the general and private offices, a finished stock room, shipping and receiving rooms and the plating and grinding departments. The general and private offices are finished in mission oak. They are equipped with men's and women's locker rooms, private toilets and lavatories, and there is located here, also, a large fireproof filing vault.

The second floor is given over to the general mechanical department, where all milling, drilling and general manufacture is done. On the third floor are the japanning department, machine and tool departments, and testing laboratory. The japanning department is believed to be the only one of its kind in the country, all the ovens being equipped with electric heat and control. It is declared that the Gray Telephone Pay Station Co., was the first concern in the world to utilize electric heat for japanning purposes, its first electric oven having been installed in 1901.

The workmen apply the japan to the instruments during the working hours of the day, depositing them, when they are completed, in the ovens When the factory day closes the time switch is set and at midnight the full electric current is applied to the ovens. This continues until 4 a. m., when the switch turns off the current automatically and the instruments are thoroughly baked and have cooled when the factory opens for work in the morning. The largest of the seven ovens used is equipped with both steam and electricity, the steam warming the instruments through before the additional electric heat is applied.

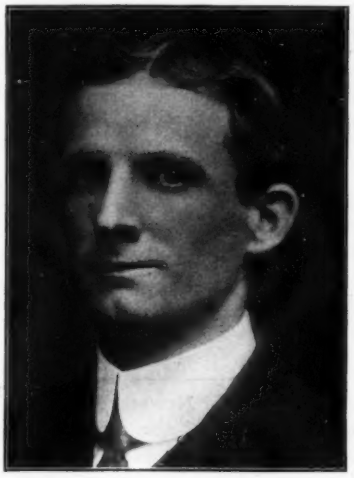


Japanning Room with Electric Bake Ovens—View in one of the Work Rooms.

The fourth floor is used for finished parts, and for a large stock room, as well as a lock making department and general assembling room.

The natural lighting of the building is derived from 18,000 lights of glass, and produces practically out-door conditions.

The general artificial lighting in all departments is supplied through the overhead system. Fire protection is insured by an automatic sprinkler system throughout the plant, with fire hose on each floor, together with fire hydrants in the yard and the necessary fire fighting appliances. Partitions of stock rooms, lockers, stairways, etc., are of steel, and all doors and openings



George A. Long.

are protected by automatic fire doors. Careful attention has been given to sanitary arrangements, to the establishment of an adequate heating system and to a system of exhaust fans for removing dust and lint.

The power house building measures 30 ft. by 43 ft. and has reinforced concrete walls, with brick spandrels and steel trusses. The radial brick chimney is 100 ft. high and 4 ft. 6 ins. in diameter. The boilers are of return tubular type, each of 125 h. p. capacity. The coal pocket, with a capacity of 300 tons, has full reinforced concrete columns and side walls, with supporting piers carrying steel girders on which the railroad track is laid, thus allowing coal to be dumped directly from the cars.

The buildings are so placed upon the property that a duplicate of the main building may be erected when future growth demands. The wings of the buildings will connect in a manner to form the letter "H," with a sally porte connecting front and rear yards.

The grounds around the company's new buildings have been artistically arranged with shrubs, etc., and the property is enclosed with an iron fence. The general lay-out and location of the buildings was arranged by George A. Long, general manager of the company.

The other officials of the Gray Telephone Pay Station Co. are as follows: President, Amos Whitney; secretary and treasurer, Charles Soby; directors, Amos Whitney, F. C. Sumner, Clarkston N. Fowler, F. L. Bishop, F. F. Street, L. S. Casewell and Charles Soby.

### Agencies of Double-Phone Mfg. Co.

The following agencies have been organized and appointed to represent the products of the Double Phone Mfg. Co., of 27 School street, Boston, Mass.: Ohio Double Phone Sales Co., Inc., 812 Prospect avenue, Cleveland, Ohio; New York Double Phone Sales Co., Inc., 31 West 42nd street, Aeolian Building, New York City; American Mfg. Sales Co., Bromo-Seltzer tower building, Baltimore, Md.; Hub Sales Co., 18 Dock Square, Boston, Mass.; Double Phone Sales Co., of Illinois, Indiana and Wisconsin, 74 First National Bank building, Chicago, Ill.

The Double Phone Mfg. Co., which is primarily a holding company for its sub-licensee companies, reports that the sales of the double-phone are particularly gratifying. The double-phone doubles the hearing capacity of the telephone, it is said, and enables two persons to receive a message at the same time. Particulars will be mailed to any interested companies on request.

### Kirby-Hawkins Co. Acquires New Pole Stock.

The Tree Expert Co., of Philadelphia, which is devoting a considerable amount of its time to "forest preservation," has made arrangements with the Kirby-Hawkins Co., of Philadelphia, whereby the latter company will acquire all its choice pole stocks, of which a goodly portion is chestnut.

The Kirby-Hawkins Co. stocks are therefore greatly increased and that company is now prepared to cater promptly to the wants of any telephone company in its territory, furnishing poles produced under the supervision of experienced pole men familiar with the needs of telephone companies.

### New Chicago Agent for Alfred F. Moore.

Effective on December 1, E. P. Bartlett was appointed exclusive sales agent for Alfred F. Moore, of Philadelphia, in the Chicago territory, with offices at 1368-1370 Grand avenue, Chicago, Ill. He will have on hand at all times a stock of magnet, weatherproof, rubber covered and other insulated wires to accommodate those customers who cannot allow time for shipment from the main office in Philadelphia.

### Entering the Telephone Field.

Edward H. Smith, who has been prominently identified with the electrical field in an engineering capacity chiefly among the power and light companies, has become interested in the possibilities prevailing in the telephone field and will hereafter give some of his time and attention to it, as well.

Edward H. Smith.

Mr. Smith enters the telephone field more generally experienced and qualified than most engineers, having had 15 years of general electrical experience or training. In that time he has been prominently associated in many big installations. Chief among these was his supervision of the underground work for the Fort Worth Power & Light Co., Fort Worth, Texas, the Bradley Light Heat & Power Co., Cleveland, O., and the Cleveland Light, Heat & Power Co., of Cleveland. Besides, he has made numerous installations of private telephone systems and electric light plants.

To a large extent, Mr. Smith will specialize in underground and overhead construction work in the telephone field, as it is in these branches he has better equipment and facilities for economically and expeditiously handling work. Any companies desiring to communicate with Mr. Smith can reach him by addressing all correspondence to 10115 N. Boulevard, Cleveland, O.

### New Homes of H. W. Johns-Manville Co.

In order to properly take care of the big increase in its volume of business, the Baltimore branch of the H. W. Johns-Manville Co. has been compelled to seek larger quarters.

The new home of the company is a modern six-story building with floors measuring 47x187 ft. It is located at 207-13 E. Saratoga street, which is within two blocks of the postoffice and right in the heart of the business section. The building will include an attractive store and up-to-date offices, in addition to large warehouse accommodations. To facilitate the handling of incoming and outgoing shipments there will be a railroad switch running into the building.

The Cleveland (sixth city) branch of the H. W. Johns-Manville Co. has recently been obliged to provide larger quarters for several of its subsidiary offices. The Columbus office and contract department are now located on the ground floor of the new seven-story fireproof Peters Power Building, 45 West Long street, Columbus, Ohio, with large warehouse facilities half a block distant. The Toledo office and warehouse have been moved to 213 Water street, Toledo. This office has just completed a pipe covering, stack lining and cork tiling job in the Second National Bank Building, Toledo, which possesses many unique features.

Other Cleveland branch sub-offices are located in Akron (717 Second National Bank Building), Dayton (259 Fourth Street Arcade), and Youngstown (502 Stambaugh Building). Resident representatives are stationed at Lima, Massillon, Greenville and other points in Ohio, also at Huntington and Parkersburg, W. Va. Their work is supplemented by a large corps of traveling men.

Last, but not least, the Cleveland branch has just closed a long-term lease for another larger warehouse on Front street, Cleveland, which, when remodeled, will give the branch larger and better storage and shipping facilities than ever.

The Toronto branch of The Canadian H. W. Johns-Manville Co., Limited, announces its removal to more spacious quarters at No. 19 Front street, East. This new store and warehouse has a floor area of approximately 35,000 sq. ft. and is situated in the heart of the wholesale district.

In its new quarters this firm will be able to carry a larger stock and have ample space for the display of its complete line of J-M asbestos roofings, packings, pipe coverings, building materials, electrical and railroad supplies, automobile and plumbing specialties, etc.

The entire building will be lighted by the company's well-known Frink and J-M Linolite system of lighting and one room will be used for exhibiting these systems of lighting.

### The Inland Electric Co.

The Inland Electric Co., of No. 14-16 North Franklin street, Chicago, is a wide awake young concern, dealing in electrical supplies and construction material, which has been developing a splendid business with the Independent telephone companies of the country. This branch of the company's business has grown to such proportions that the concern will hereafter maintain a department devoted entirely to the telephone trade. The company maintains a complete stock not only of construction material and of construction tools and supplies, but also has ready for immediate delivery a full line of telephone parts and telephone supplies, such as batteries, condensers, telephone and switchboard cords, mouthpieces, lightning arresters, fuses, etc.

The telephone department will be in charge of A. V. Overshiner, who has had many years' active telephone experience and enjoys a wide acquaintance throughout the telephone field. Mr. Overshiner will devote his entire time to the telephone trade and his knowledge of the business will be of value to the buyer as well as to the company. Telephone men visiting Chicago are invited by the company to make their headquarters at the Inland Electric and they will be made to feel at home.

The officers and managers of the Inland Electric Co. are men of ripe and mature experience in the electrical field, men of action, men that have made good, and men that are making good, in the fullest sense of the term, with the Inland Electric.

The Inland Electric declares its motto to be: "Keep on the job and keep moving," right treatment, right delivery, right quality and right prices at all times and in each case.

### Paragraphs.

McRoy Clay Works, Chicago, says on its December blotter calendar: "There's a species of standpatism that's scarcely distinguishable from stubbornness."

R. S. Mueller, manufacturers' agent and warehouseman, 423-425 High avenue, S. E., Cleveland, Ohio, has issued the Cleveland Stock Sheet, showing magnet wire in Cleveland stock on November 19.

### "First Gathering of Newark Telephone Co."

Officers and employes of the Newark Telephone Co., of Newark, Ohio, representatives of subsidiary exchanges and other citizens to the total number of 70 were guests recently at a banquet given by the company. The printed menu card, entitled "First Gathering of the Newark Telephone Co.," is an interesting souvenir of the occasion. On the outside is shown the Independent Shield and on other pages, the menu and some anecdotes and verses. The various dishes were designated by means of telephonic terms.

During the after dinner speeches it was told how the city council granted Warren S. Weiant a telephone franchise, after a 15-minute exchange of wit, back in 1894, and how Mr. Weiant, though bombarded by the jokes of his townsmen, had cut the Bell rate in two, built up an Independent system and increased the number of subscribers from 200 to 4,300.

In course of the remarks of company officers it was announced that the Newark company is about to build a branch exchange at St. Louisville with 100 or more subscribers to begin with. This company recently took over the Somerset and Glenford Independent telephone companies, which, with the new St. Louisville exchange, its Granville and Hanover and farmer line connections, and its working arrangement with numerous exchanges in the county, will mean the complete covering of territory comprised in a radius of 30 miles, irrespective of the regular long-distance service.

### Alert and Heroic Service Appreciated.

H. F. Addison, manager of the Hays Telephone Co., of Hays, Kan., has favored Telephony with some clippings from a local newspaper which show that "the public is not so unappreciative of good service rendered" as may sometimes be thought.

A serious fire occurred in Hays, and when it was seen that the fire was assuming proportions likely to be beyond the control of the local fire department the Hays Telephone Co. called up Ellis, 13 miles distant, for assistance.

Just 27 minutes later two hose carts from the neighboring town arrived on a special train and with this assistance the fire was soon under control and the Hays brick block saved.

The city council passed a resolution extending a vote of thanks to those who had rendered such timely assistance, including the Hays Telephone Co.

# Legal Cases and Decisions

By A. H. McMillan

### Advantages of Incorporation.

"We are not incorporated. Our company is run as a partnership. We would like to know if it is better to be incorporated. Please give us your opinion on this, and tell us the things that will be to our benefit if we incorporate. Would you advise us to incorporate before January, 1914, at which time the Illinois public utility law goes into effect."

We would advise an incorporation. The chief reason in favor of incorporation is that state statutes generally give privileges to corporations in use of its roads, streets and public places, which they do not accord to individuals. Moreover, the liability of stockholders of a corporation is limited to the amount of cash they have invested, whereas partners are liable to the extent of their property, both personally and individually. We would recommend incorporation at once.

### The Ordinance is a Franchise.

"I am sending a copy of the ordinance under which we have been doing business for 15 years. I would like to have you tell me whether this ordinance is what we want, or if we should have a franchise. Would a franchise be better for us under the new utility law, which goes into effect on January 1? If we should ask for a franchise, should we do so before January 1? Any information you may give use on this matter will be greatly appreciated."

The ordinance, of which you inclose a copy, seems to be the franchise. A franchise is defined as "A special privilege conferred by a government, on individuals or corporations, which does not belong to the citizens of the country generally by common right." It has also been defined as "a privilege derived from the government vested either in individuals or private, or public corporations." California State Telephone Co. vs. Alta., 22 California, 398, 422. It seems to us that what you have is as much of a franchise as you need.

### Police Regulation.

"Ten years ago we obtained a franchise from the town board, to erect poles and wires in the streets and alleys of the town for a period not exceeding 25 years. The plant was built and the poles erected. Now the members of the board want to tear down the poles and wires and place them in the alleys. Has the town board authority to compel us to do this?"

The authority of the town board to require you to move your poles from the streets into the alleys, depends upon the reason why they wish to do it. If it is for the health, welfare and safety of the inhabitants of the town that it should be done, it can undoubtedly be done under the authority of the police power. The question would also depend in considerable degree upon the express terms of your franchise, which we have not before us.

### An Indirect Injury.

"On Jan. 31, 1913, while five linemen were taking down about 800 feet of iron wire, one of the wires dangled into an electric light wire, which was bare of insulation for about two feet. A lineman who was coming down the pole one block away, came in contact with the charged telephone wire and was knocked off of the pole, falling on a man, who, the witnesses say, was or had been looking at the man on the pole, but the man hurt claims he was walking along and did not know a man was on the pole. A mule ran into the wire and was killed about the same time.

The man upon whom the lineman fell has entered suit for $2,000 against the telephone company. He is now paralyzed in his left side, leg and arm. The doctors can not tell whether injury is permanent or not.

Is the telephone company liable, or are both companies liable? Our lawyers claim that the telephone company is not liable, as it was not negligence of the telephone company, but of the light company, as the light wire was not properly insulated."

While the injury described above was indirect as to the person injured, still we are inclined to think that both the telephone company and the electric light company are jointly liable. It was negligent for the electric light company to have an uninsulated wire, and, at the same time, it was negligent for the lineman of the telephone company to allow the wire to dangle into the uninsulated electric wires. Even if the pedestrian were looking at the man on the pole, he had no reason to think that such man would unexpectedly fall off and injure him. It seems to us a good case to settle.

### Conditions as to Rates.

Under the transportation corporations' law of New York (Consol. laws 1909, c. 63, Section 102), providing that underground electric lines may not be laid without obtaining permission of the common council of the city in which the proposed works are located, and the charter of the city of Syracuse, providing that no telephone wires shall be placed in conduits without first obtaining the consent of the common council of the city, the city of Syracuse may, on granting a franchise to the telephone company to construct subways in the streets of the city, impose conditions as to the rates to be charged telephone subscribers. So held the Supreme Court of New York in a case involving the right of the New York Telephone Co., doing business in Syracuse, to charge a greater rate than permitted in the franchise.

In 1887 the city granted a franchise to a telephone company on the ground that a suitable and adequate telephone service should be given and that not more than a specified rate should be charged for a period of six years. In 1897 the city granted a supplementary franchise for the construction of subways, subject to the condition that the former rate should not be increased. At the time the telephone plant was completed and put in operation, the art of telephony was substantially in its infancy and the instruments then in use were, when viewed in the light of subsequent improvements, quite crude and undeveloped. The system then in use was known as the ground wire system. Later the common return system was introduced, and still later, the metallic circuit system.

The court held that the rate fixed by the franchise of 1887 must be continued in spite of the fact that more modern and approved appliances had been installed, subsequent to the grant of the franchise in 1887. For about seven years the company had charged a rate in excess of that fixed by the franchise, during which time its right to make the charge was not contested. This was held by the court not to constitute a practical construction of the ordinance in favor of the right of the company to increase its rate. Murray vs. New York Telephone Co., 143 New York State, 534.

### What is Negligence in Locating Guy Wire?

As a municipal corporation may authorize a telephone company to use the streets, and as that portion of the street reserved for the sidewalk is not subject to use by persons driving along the street, a telephone company is not guilty of negligence in running a guy wire from the defendant pole to a rod sunk in the earth inside of the curbing, even though the wire reaches so low that a horse, becoming frightened and leaving the street, entangles himself therein. So held the Indiana appellate court in an action for damages for injury to a horse caused by its becoming entangled in the guy wire. Delaware & Madison Counties Telephone Co. vs. Fleming, 102 Northeastern, 163.

### Contribution for Joint Liability.

In an action against the Southern Telephone Co., to recover the sum of $1,000 and upwards, alleged to be due on account of that amount paid by the plaintiff for the company as accommodation endorser on a promissory note, it was held that the telephone company, in defense, could set off its right of contribution from the plaintiff for fees paid by the company to the attorneys who represented both parties in the prior litigation. Southern Telephone Co. vs. Banks, 158 Southwestern, 158.

# Condensed News Reports

**Officers of Companies are Earnestly Requested to Forward Us Promptly All Financial and Other Statements as Soon as Issued, and Any Items of Interest as to Their Plants and Systems**

### Personals.

F. W. HAFLIGER has been appointed manager of the Hopedale Farmers Telephone Co., at Hopedale, Ill.

JACOB HANSMAN, of Carmi, Ill., has been appointed manager for the Commercial Telephone & Telegraph Co., at Enfield, Ill.

FRED MYERS, of Sidney, Iowa, has been appointed manager of the Thurman Telephone Co., of Thurman, Iowa, to succeed I. C. Evenger.

MILLARD HILL has tendered his resignation as director and general manager of the Prophetstown Mutual Telephone Co., of Prophetstown, Ill.

C. C. CAZER, wire chief for the Central Union Telephone Co., at Newark, Ohio, has been transferred to Dresden, Ohio, as superintendent of plant.

DR. ALEXANDER GRAHAM BELL has been awarded the gold medal of the Royal Society of England in recognition of his inventions, notably that of the telephone.

G. L. CLEVELAND, manager of the Albion, Mich., office of the Michigan State Telephone Co., has been transferred to the plant department of the Grand Rapids exchange.

W. H. SULLIVAN, local manager for the Michigan State Telephone Co., at Dowagiac, Mich., has been transferred to the management of the Albion office of the company.

H. W. CORTISS, local commercial manager of the Mt. Kisco, N. Y., office of the New York Telephone Co., has been transferred to Peekskill, where he will hold a similar position.

HILL MOSS, for the past 16 years connected with the Wabash Valley Telephone Co., at Chrisman, Ill., has accepted a position as manager for the Coles County Telephone Co., at Charleston, Ill.

C. L. STOCKWELL, of White Plains, N. Y., has been appointed commercial manager of the Mt. Kisco office of the New York Telephone Co., to succeed H. W. Cortiss, who has been transferred to Peekskill.

THOMAS H. BEESON, manager of the Alliance, Neb., office of the Nebraska Telephone Co., has been promoted to assistant commercial manager of the Norfolk district, with headquarters at Norfolk.

C. A. CURRIE, local manager of the Nebraska Telephone Co., at Broken Bow, Neb., has been appointed manager of the Alliance exchange, to succeed T. H. Beeson, who has been transferred to Norfolk.

H. C. LIGHTFOOT, for the past year and a half connected with the Southern Bell Telephone & Telegraph Co., as wire chief for the Augusta, Ga., plant, has received a promotion to plant supervisor of the Jacksonville, Fla., exchange.

G. C. BOWDEN, district commercial manager for the Southern Bell Telephone & Telegraph Co., at Decatur, Ala., has been transferred to the staff of the Cumberland Telephone & Telegraph Co., at Memphis, Tenn.

A. G. KRAUSS, who for the past two years has been connected with the Mountain States Telephone & Telegraph Co., as district commercial superintendent, with headquarters at Boise, Idaho, has been promoted to special representative for the same district, to succeed E. L. Taylor, who recently resigned.

### New Companies and Incorporations.

PALISADE, MINN.—The Palisade Rural Telephone Co. has filed articles of incorporation with $5,000 capital stock. Officers of the company have been elected as follows: President, J. O. Werntz; vice-president, Wm. J. Weber; secretary and treasurer, H. E. Meyers, all of Palisade.

GRAHAM, MO.—Articles of incorporation have been filed by the People's Telephone Co. with $6,510 capital stock. The incorporators are: G. M. McNeill, O. L. Mowrey, and George Elliott.

FARRINGTON, N. D.—The Knife River Telephone Co. has been incorporated with $24,960 capital stock to operate in Oliver and Mercer counties. The incorporators are: S. A. Murray, of Farrington; W. D. Walsh and J. Frank Shattuck, both of Aplin. (No better address given.)

STANLEY, N. D.—Articles of incorporation have been filed by the Fairview Farmers Telephone Co. with $2,500 capital stock by O. G. Kruger, C. J. Platt, both of Stanley, and Fred L. Anderson, of Ross, N. D.

### Construction.

DUCOR, CAL.—The Ducor-Hot Springs Telephone Co. has purchased a site and will erect a new exchange building in this town.

VISALIA, CAL.—The Pacific Telephone & Telegraph Co. has appropriated $8,000 for improvements to its plant in this town.

HECKER, ILL.—The Hecker Telephone Association is planning to install a new switchboard and to build a new trunk line to Red Bud.

JOHNSTOWN, PA.—E. D. Schade, general manager of the Johnstown Telephone Co., has announced that improvements which will cost in the neighborhood of $25,000, are to be made to the local exchange in this city.

### Elections.

HECKER, ILL.—The Hecker Telephone Association held its annual meeting recently and elected the following officers for the ensuing year: President, Theo. Klinkhardt; vice-president, Francis Kemp; secretary, Henry S. Braun; treasurer, Adolph Rausch.

MASSENA, IOWA.—At the annual meeting of the Massena Independent Telephone Co. the following officers were elected for the coming year: John P. Waters, president; A. C. Buboltz, vice-president and manager; W. R. Krause, secretary; and J. J. Hogan, treasurer.

### Financial.

SANDY, ORE.—The Firewood-Dover Telephone Co. has filed amended articles of incorporation, increasing its capital stock from $1,000 to $2,000.

ALLENTOWN, PA.—The Consolidated Telephone Co. has been authorized to issue $4,000,000 worth of bonds. H. W. Darow is secretary of the company.

STAUNTON, VA.—The Staunton Mutual Telephone Co. has filed an amendment to its charter, increasing the capital stock of the company from $50,000 to $100,000.

### Franchise.

MALVERN, ARK.—H. B. Means has filed application for a franchise to install and operate a telephone system in this city, to be known as the Home Telephone System.

### Underground.

PORTERSVILLE, CAL.—The Pacific Telephone & Telegraph Co. will lay a considerable amount of underground cable in this place.

BRISTOL, CONN.—The Southern New England Telephone Co. has been authorized by the city council to lay conduit in several of the main streets.

CHILLICOTHE, MO.—The Missouri & Kansas Telephone Co. has appropriated $25,000 for improvements to its local exchange in this city. Among the improvements planned, the company will lay over 2,000 feet of underground cable and nearly 24,000 feet of aerial cable will be strung.

### Miscellaneous.

BRYANT, IND.—S. R. Chaney, receiver for the Bryant Telephone Co., has sold the property to James Rupel, George Montgomery, W. H. Eberson, and P. L. Prece for $2,891.70.

PERKINSVILLE, IND.—Hershel Anderson, of Indianapolis, has purchased the Perkinsville Telephone Exchange from Dan Lennis for a consideration of $2,000.

BANCROFT, IOWA.—B. H. Gardener, owner and manager of the Bancroft Telephone Co., has sold the system to the Spencer Telephone Co., of Spencer, Iowa. Mr. Gardener will move to Faulkton, S. D., where he owns an electric lighting plant.

VIOLA, KANS.—L. J. Miller, of this town, has purchased the Viola Mutual Telephone System and is now sole owner.

ST. JAMES, MO.—The St. James Telephone System, owned and managed by N. A. Kinney, of Rolla, was recently sold to Floyd McComb, of Greenfield.